# UNION PACIFIC R.R.

## ~ STANDARDS ~

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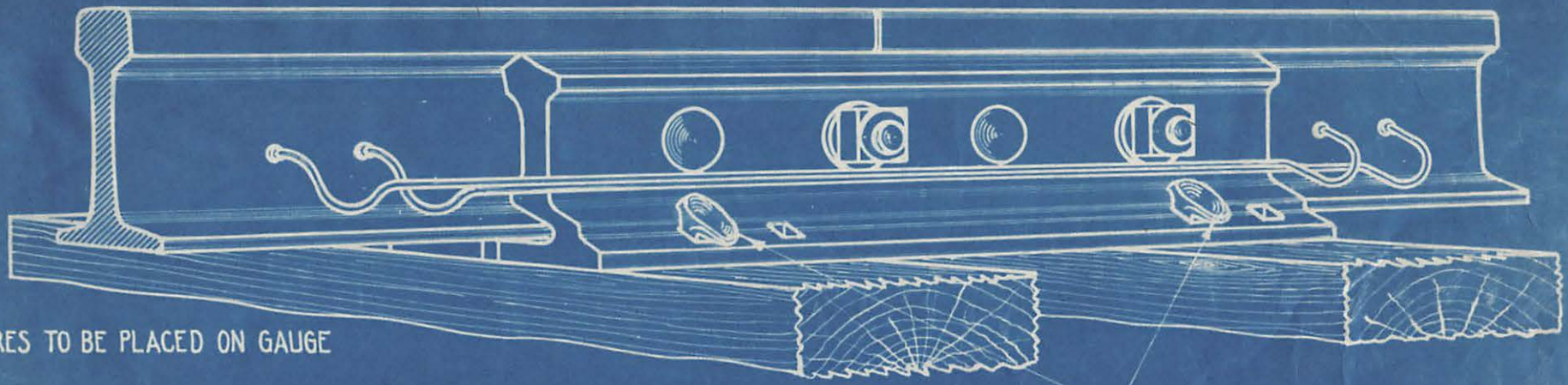
| | | | | | | | |
| | | | | | | | |

REVISED: JAN. 24 1919. | A-401



LL BOND WIRES TO BE PLACED ON GAUGE
DE OF RAIL.

SPIKES TO BE TURNED AROUND WITH LIP TOWARD CENTER OF TRACK AS SHOWN TO PREVENT CUTTING BOND WIRES.

TABLE SHOWING LENGTH OF BOND WIRE TO BE USED WITH ANGLE BAR.

| LENGTH OF ANGLE BAR. | LENGTH OF BOND WIRE. |
|---|---|
| 24" | 44" |
| 26" | 46" |
| 27" | 46" |
| 29" | 50" |
| 36" | 56" |
| 40" | 60" |

**UNION PACIFIC RAILROAD.**

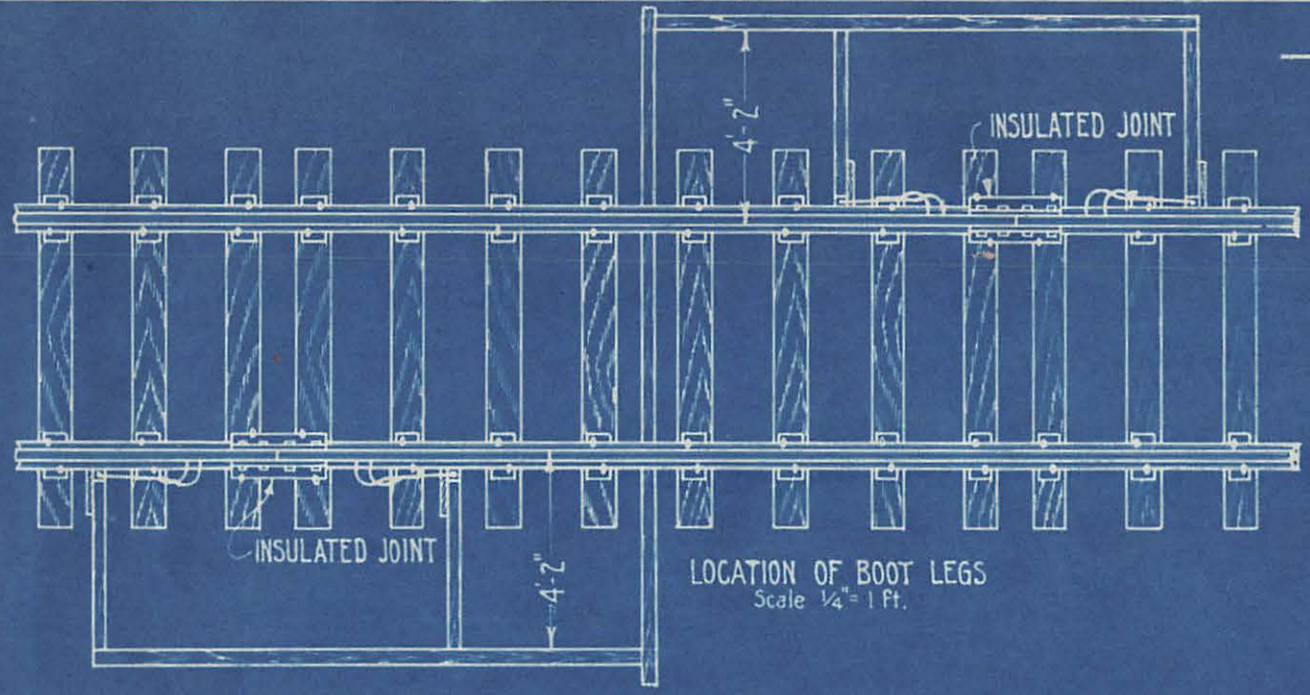
OFFICE OF SIGNAL ENGINEER. OMAHA NEBR.

# STANDARD BONDED RAIL JOINT.

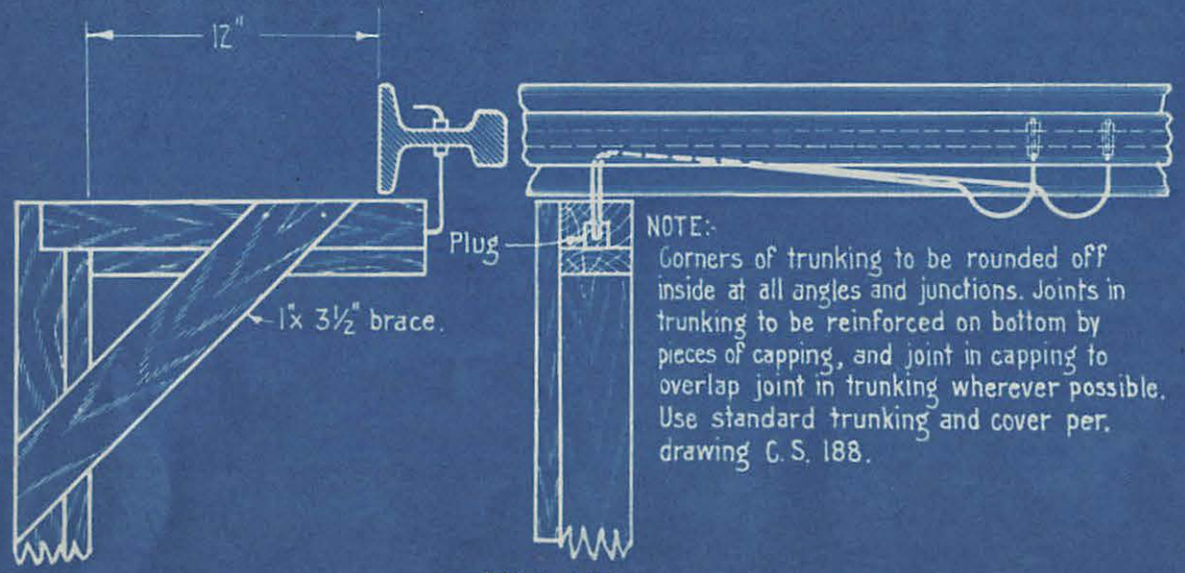
NOT TO SCALE. JAN. 24 1918.

DRAWN BY R.A.F. CHECKED BY R.Q.F. APPROVED F. W. Q/Leyring.

REVISED MAY 28, 1920. | A-402



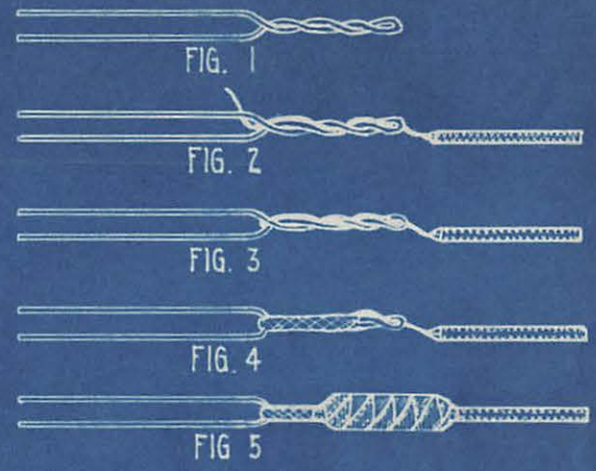

LOCATION OF BOOT LEGS
Scale 1/4" = 1 ft.




BOOT LEG.
Scale 1½" = 1 Ft.

NOTE:-
Corners of trunking to be rounded off inside at all angles and junctions. Joints in trunking to be reinforced on bottom by pieces of capping, and joint in capping to overlap joint in trunking wherever possible. Use standard trunking and cover per. drawing C.S. 188.

WIRE CONNECTIONS




EXPLANATION.

Fig. 1 shows the 8 ft. copper clad bond wire as first formed for the connection.

Fig. 2 & 3 shows the method of splicing the № 10 solid wire to the copper clad bond wire.

Fig. 4 shows the soldering which should be well applied toward the end of the joint so as not to injure the insulation of the copper wire.

Fig. 5 shows the joint taped.

Boot leg wires to be № 8 B.W.G. 30 conductivity soft drawn copper clad bond wires 8 ft. long.

Copper wire to be № 10 B & S solid rubber insulated with 5/64" wall one tape and one braid.

Acid must not be used in soldering.

After soldering joint must be wrapped with tape.

Splices in underground wires must not be used.

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD
## BOOT LEG CONSTRUCTION

SCALE AS NOTED — MAY 28, 1920.

SUPERSEDES 5032

DRAWN BY RAF CHECKED BY RAF APPROVED

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 52+80 | 26 | 1372+80 | 51 | 2692+80 | 76 | 4012+80 |
| 2 | 105+60 | 27 | 1425+60 | 52 | 2745+60 | 77 | 4065+60 |
| 3 | 158+40 | 28 | 1478+40 | 53 | 2798+40 | 78 | 4118+40 |
| 4 | 211+20 | 29 | 1531+20 | 54 | 2851+20 | 79 | 4171+20 |
| 5 | 264+00 | 30 | 1584+00 | 55 | 2904+00 | 80 | 4224+00 |
| 6 | 316+80 | 31 | 1636+80 | 56 | 2956+80 | 81 | 4276+80 |
| 7 | 369+60 | 32 | 1689+60 | 57 | 3009+60 | 82 | 4329+60 |
| 8 | 422+40 | 33 | 1742+40 | 58 | 3062+40 | 83 | 4382+40 |
| 9 | 475+20 | 34 | 1795+20 | 59 | 3115+20 | 84 | 4435+20 |
| 10 | 528+00 | 35 | 1848+00 | 60 | 3168+00 | 85 | 4488+00 |
| 11 | 580+80 | 36 | 1900+80 | 61 | 3220+80 | 86 | 4540+80 |
| 12 | 633+60 | 37 | 1953+60 | 62 | 3273+60 | 87 | 4593+60 |
| 13 | 686+40 | 38 | 2006+40 | 63 | 3326+40 | 88 | 4646+40 |
| 14 | 739+20 | 39 | 2059+20 | 64 | 3379+20 | 89 | 4699+20 |
| 15 | 792+00 | 40 | 2112+00 | 65 | 3432+00 | 90 | 4752+00 |
| 16 | 844+80 | 41 | 2164+80 | 66 | 3484+80 | 91 | 4804+80 |
| 17 | 897+60 | 42 | 2217+60 | 67 | 3537+60 | 92 | 4857+60 |
| 18 | 950+40 | 43 | 2270+40 | 68 | 3590+40 | 93 | 4910+40 |
| 19 | 1003+20 | 44 | 2323+20 | 69 | 3643+20 | 94 | 4963+20 |
| 20 | 1056+00 | 45 | 2376+00 | 70 | 3696+00 | 95 | 5016+00 |
| 21 | 1108+80 | 46 | 2428+80 | 71 | 3748+80 | 96 | 5068+80 |
| 22 | 1161+60 | 47 | 2481+60 | 72 | 3801+60 | 97 | 5121+60 |
| 23 | 1214+40 | 48 | 2534+40 | 73 | 3854+40 | 98 | 5174+40 |
| 24 | 1267+20 | 49 | 2587+20 | 74 | 3907+20 | 99 | 5227+20 |
| 25 | 1320+00 | 50 | 2640+00 | 75 | 3960+00 | 100 | 5280+00 |

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## DECIMAL EQUIVLENTS OF A MILE.

NO SCALE — MAY 1, 1919.

DRAWN BY R.A.F. CHECKED BY R.A.F. APPROVED F.H.P.

A-404




NOTE:
LEAVE SOLUTION 5/8" FROM TOP OF JAR WHEN COLD TO PROVIDE AT LEAST 1/2" IN CLEAR SOLUTION ABOVE TOP OF ZINC IN ORDER TO PROVIDE FREE CIRCULATION OF THE SOLUTION BETWEEN THE PLATES.

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD.

## EDISON CAUSTIC SODA PRIMARY BATTERY

NO SCALE — APRIL 27, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.F. APPROVED F. W. Pfleging

A – 405

Must be full thread to these points.
4 sq. nuts and 4 sq. washers to
be furnished with each bolt.

Revised Dec. 14 [illegible] 16
No. changed.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by W.B.H.
Checked by C. a. a.
Approved [illegible]
Date Dec. 10, 1909

# STANDARD
# DOUBLE ARMING BOLT.

Revised :-

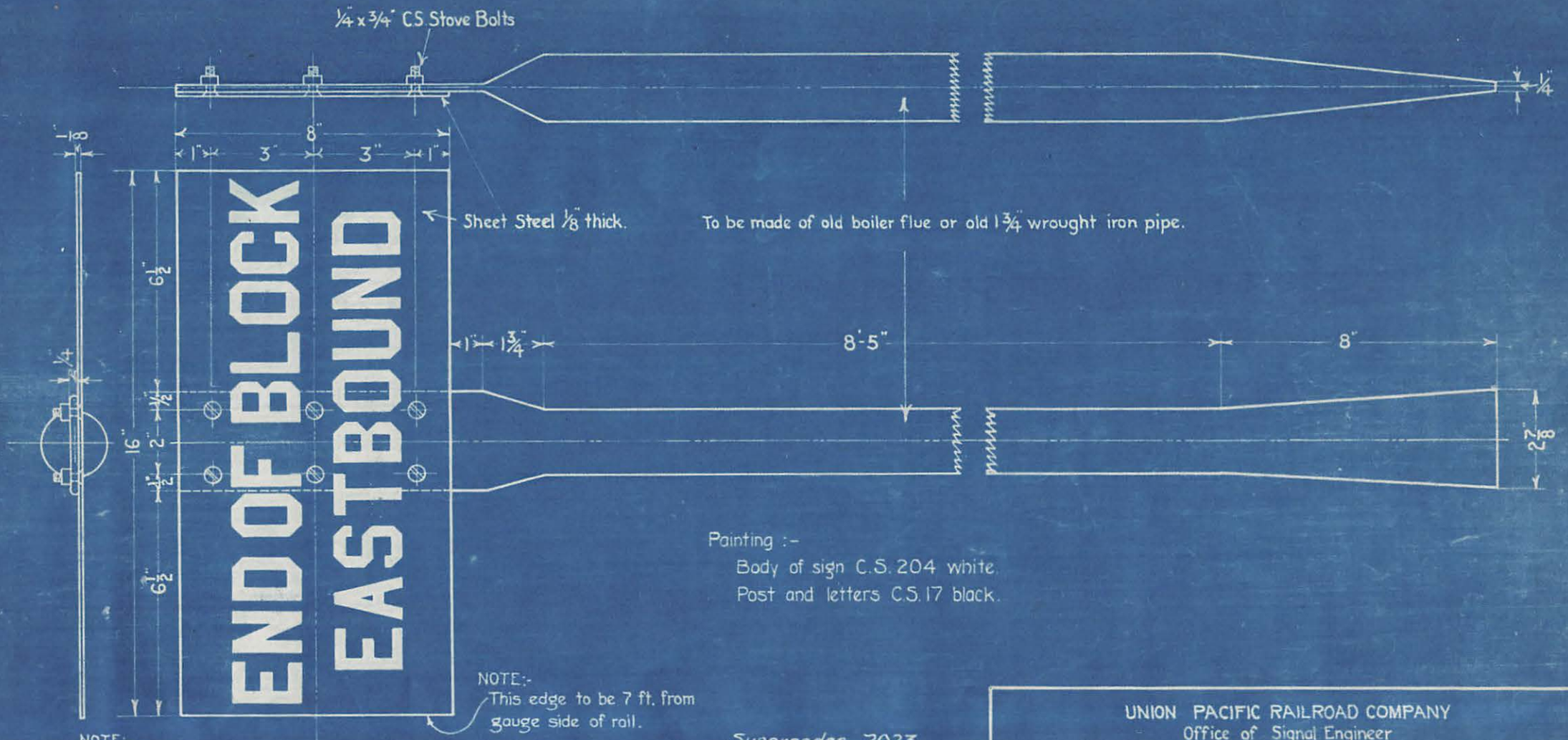
Scale half size.

LEVER LIGHT

STANDARD LAMP

| Railroad Company | Lamp used in lever Lights previous to 4-29-26 | 12-16 v. 3 c.p. lamp #116342-B12409-11 |
|---|---|---|
| N.Y.N.H.&H. | 12 v. 1½ w. G8 candel. base | |
| C.R.R. of N.J. | 18-24 v. 2 c.p.-G6 candel. base | |
| I.R.T. | 80 v. 8 w. C5 Tung. G10 " " | |
| Boston Elevated | Same as I.R.T. on 55 v. circuit | |
| P.R.R. | 18-24 v. 3 c.p., G6 Min. base with adapter. | |
| C.C.C.&St.L. | 16 v. G10 Candel. base O.K. 5-10-26 | |
| Union Pacific | 110 v. 2 c.p. G10 Candel. base | O.K. for bids 5-3-26 |
| Pacific Electric | 110 v. 2 c.p. G10 " " | O.K. 5-24-26. |
| Illinois Central | | O.K. |
| Long Island | 12 v. 1½ w. | O.K. |

A-406




Painting :-
Body of sign C.S. 204 white.
Post and letters C.S. 17 black.

NOTE:-
This edge to be 7 ft. from gauge side of rail.

NOTE:-
Top of sign to be 5 ft 6" from top of rail.

*Supersedes 7023.*

Revised November 30, 1910.
Notes added.
Revised Oct 4, 1916.
Number changed.

Drawn by WEM
Checked by L.D.D.
Approved F.H.P.
August 2-1910

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

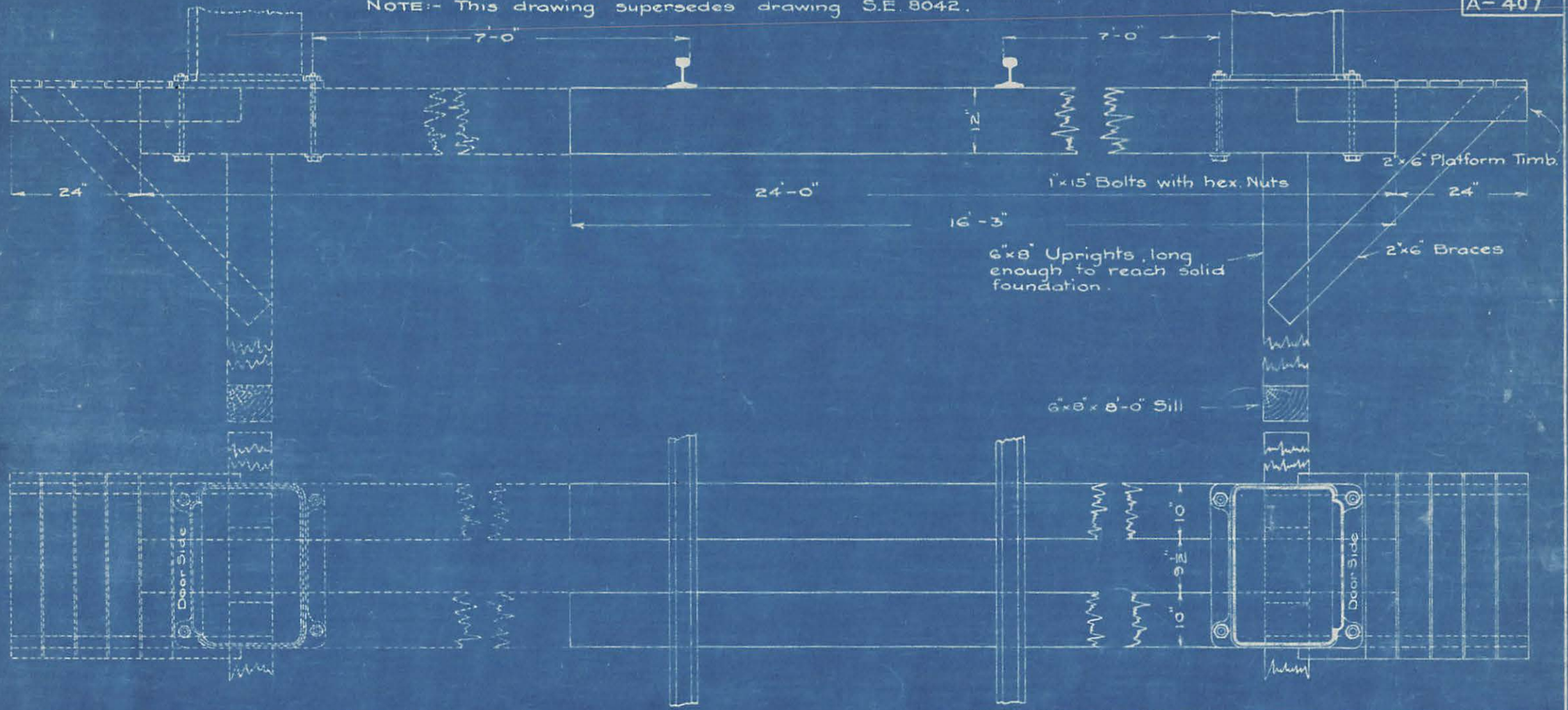
STANDARD.
END OF BLOCK SIGN

Revised

Scale 3" = 1'

NOTE:- This drawing supersedes drawing S.E. 8042.

A-407




NOTE:- To be used only where the concrete foundation, shown on A-492, would be liable to settle.

Revised: Sept. 22, 1919.
Revised: Oct. 27. 1916.

L.H.

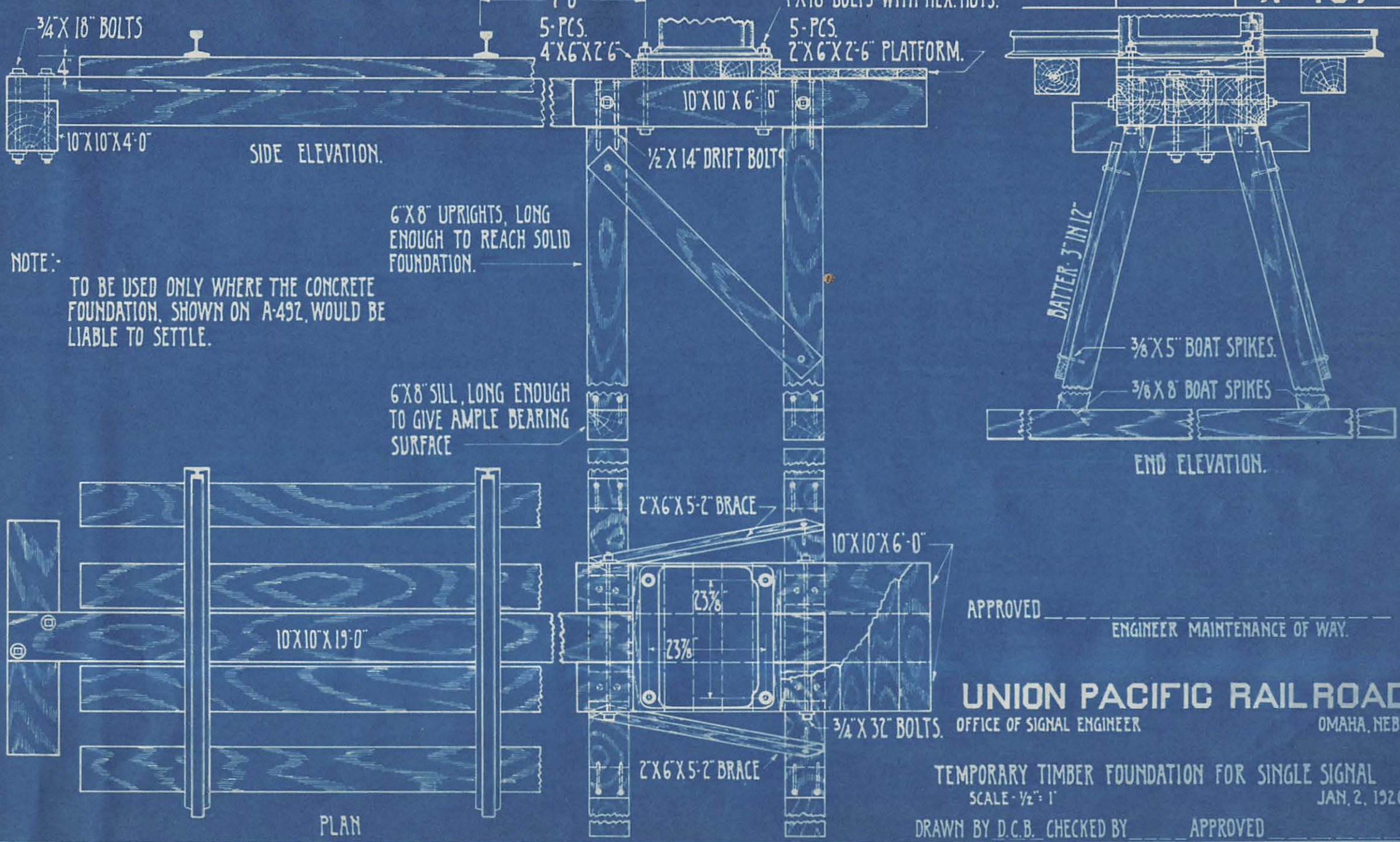
March 13, 7.

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

STANDARD
TEMPORARY TIMBER FOUNDATION FOR SIGNALS

Scale: ½" = 1 ft.

A-407




APPROVED _____
ENGINEER MAINTENANCE OF WAY.

**UNION PACIFIC RAILROAD**

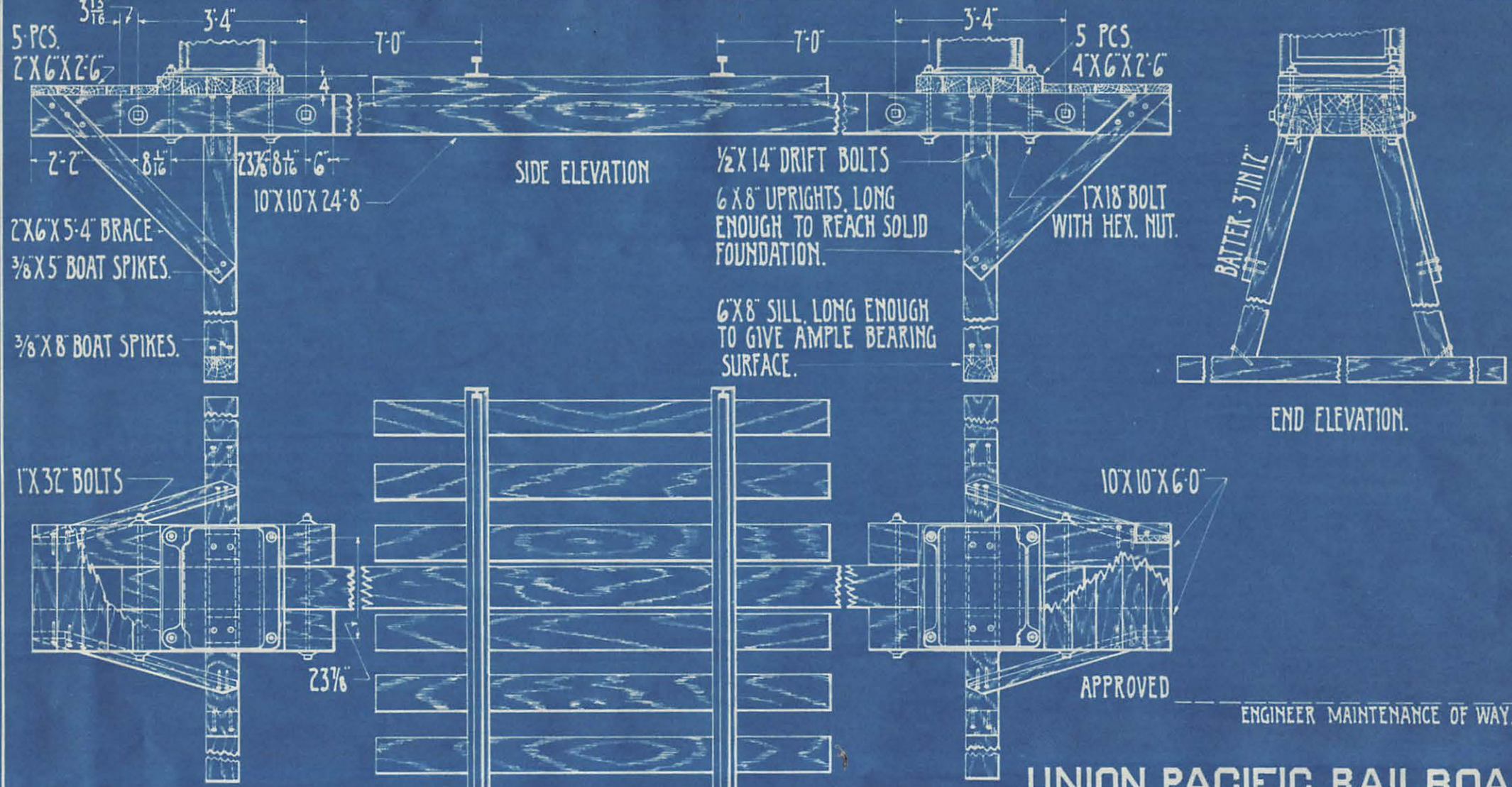
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

TEMPORARY TIMBER FOUNDATION FOR SINGLE SIGNAL

SCALE - 1/2" = 1' — JAN. 2, 1920.

DRAWN BY D.C.B. CHECKED BY _____ APPROVED _____

A-407




APPROVED _____

ENGINEER MAINTENANCE OF WAY.

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

NOTE:

TO BE USED ONLY WHERE THE CONCRETE FOUNDATIONS SHOWN ON A-492, WOULD BE LIABLE TO SETTLE

TEMPORARY TIMBER FOUNDATION FOR DOUBLE SIGNAL LOCATION

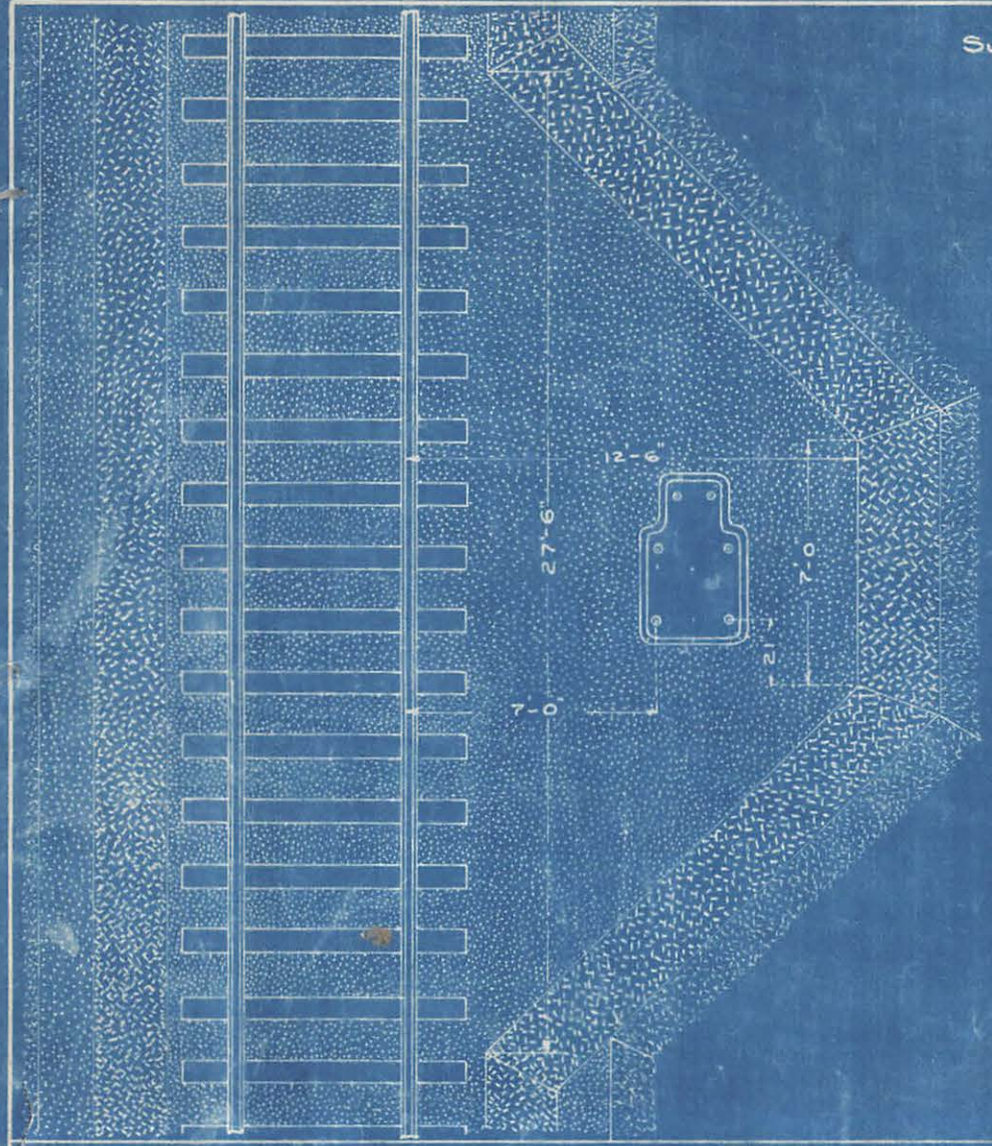
SCALE-3/8"=1' — JAN. 6, 1919.

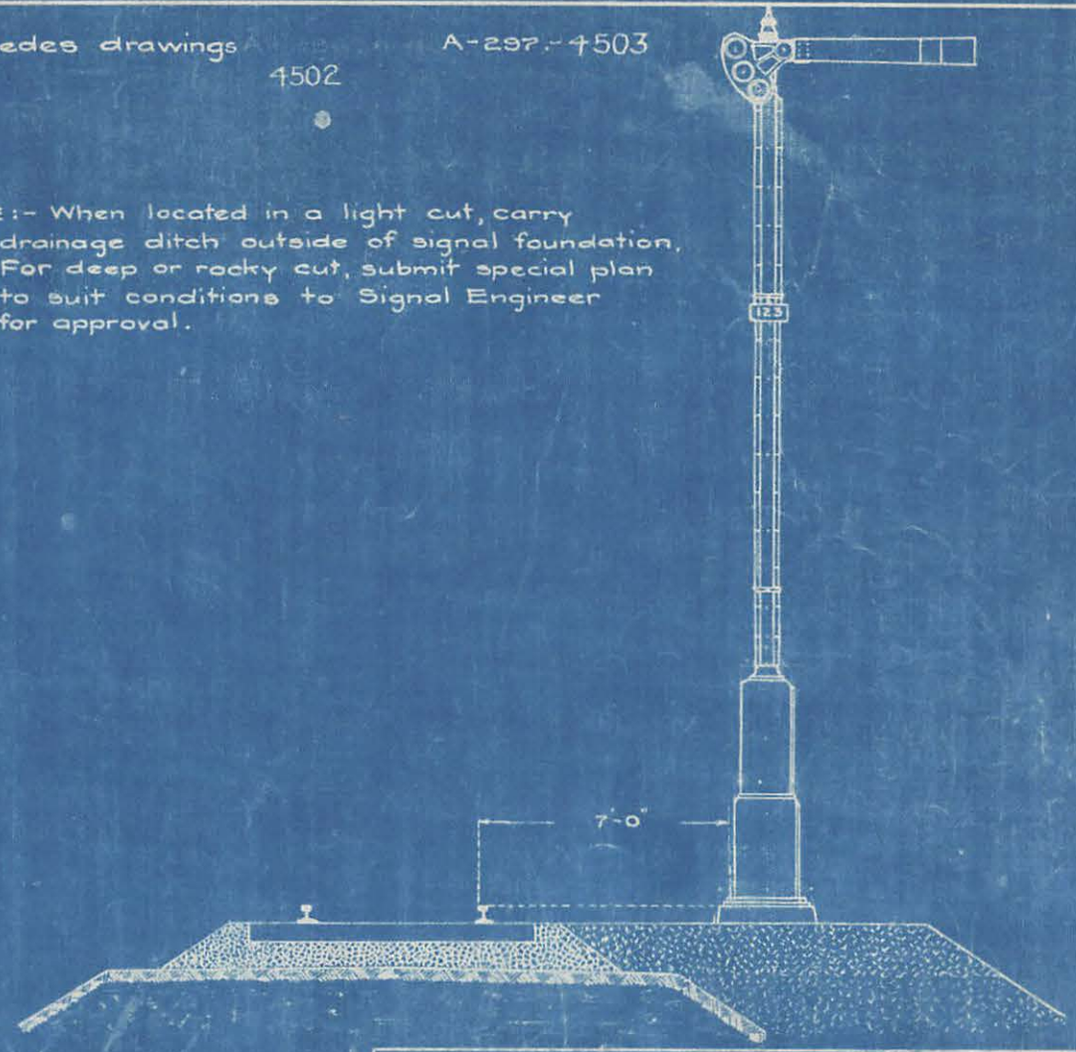
DRAWN BY D.C.B. CHECKED BY ____ APPROVED ____

A-408

Supersedes drawings A-297.-4503
4502

NOTE:- When located in a light cut, carry drainage ditch outside of signal foundation. For deep or rocky cut, submit special plan to suit conditions to Signal Engineer for approval.




UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

L.H.

March 12. 1907

STANDARD
SIGNAL FOUNDATION EMBANKMENT

Scale: $\frac{3}{16}$" = 1 ft.

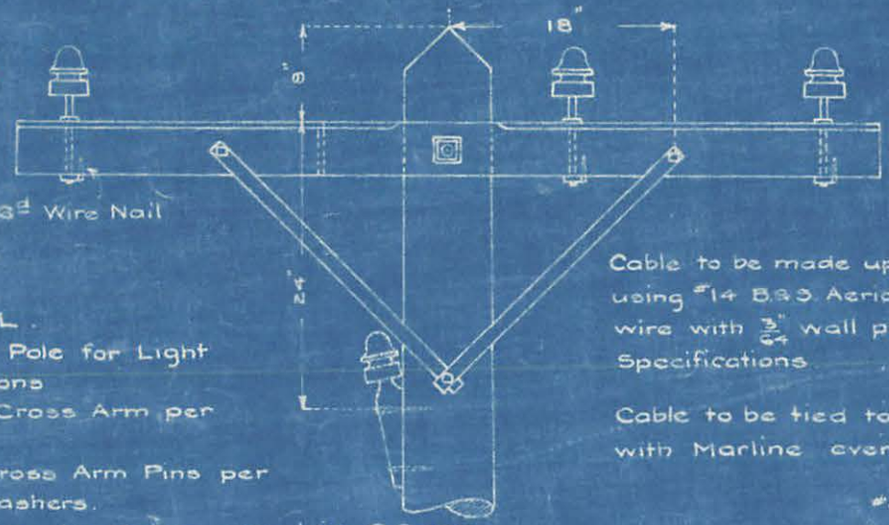
A-409

This drawing supersedes drawings S.D.57, S.D. 9038 and S.D. 9040.

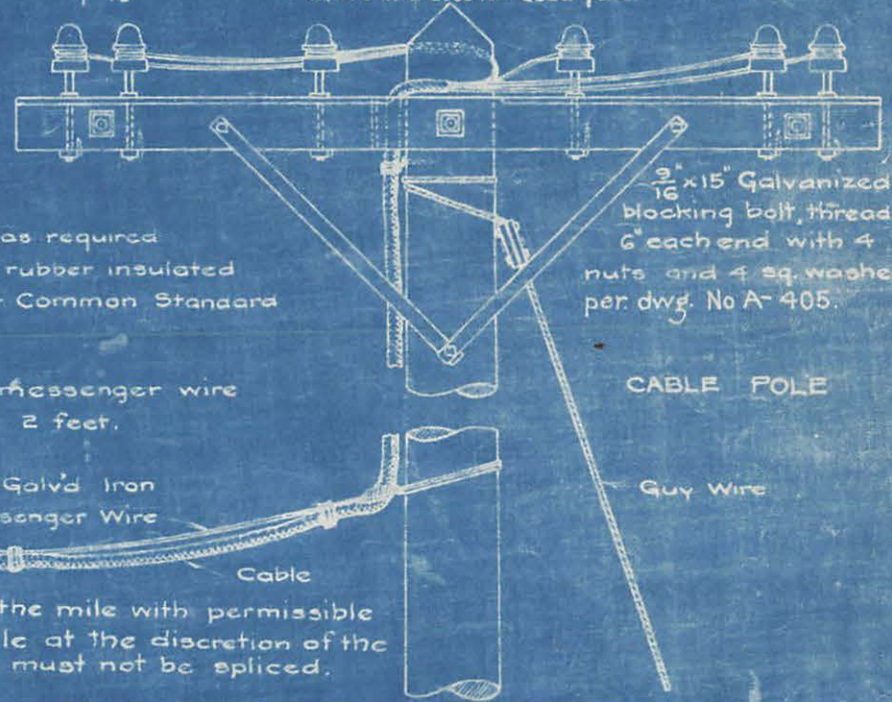
TRACK SIDE

FIELD SIDE

5/8 Steel pins used on terminal poles.
1/2 " " " where line does not dead end.




8d Wire Nail



9/16"x15" Galvanized blocking bolt, threaded 6" each end with 4 nuts and 4 sq. washers per dwg. No A-405.

CABLE POLE

Guy Wire

NOTE:-
No washer to be used under nut of cross arm pins.

Cross Arms to face alternately

## BILL OF MATERIAL

1-25 Ft. Eastern White Cedar Pole for Light Trunk Line, per Specifications
1- Common Standard 4 Pin Cross Arm per revised drawing C.S.105.
3- Common Standard Steel Cross Arm Pins per drawing C.S.105 without washers.
3- Common Standard Plain Glass Insulators per dwg. C.S.106.
2- 1 7/32" x 7/32" x 28" Galvanized Steel Cross Arm Braces.
1- 9/16" x 11" Galvanized Steel Cross Arm Bolt & Nut with thread rolled to 5/8".
2- 2¼" x 2¼" x 3/16" Galvanized Square Washers for the above.
1- 1/2" x 3 1/2" Rolled Thread Drive Lag Screw.
2- 3/8" x 2 1/2" Rolled Thread Drive Lag Screw.
8- 8d Common Wire Nails.

Cable to be made up as required using #14 B.&S. Aerial rubber insulated wire with 3/64" wall per Common Standard Specifications.

Cable to be tied to messenger wire with Marline every 2 feet.

Poles to be set 26 to the mile with permissible increase to 35 per mile at the discretion of the Signal Engineer. Poles must not be spliced.

Revised Oct. 27, 1916.

L.H.

March. 6 7.

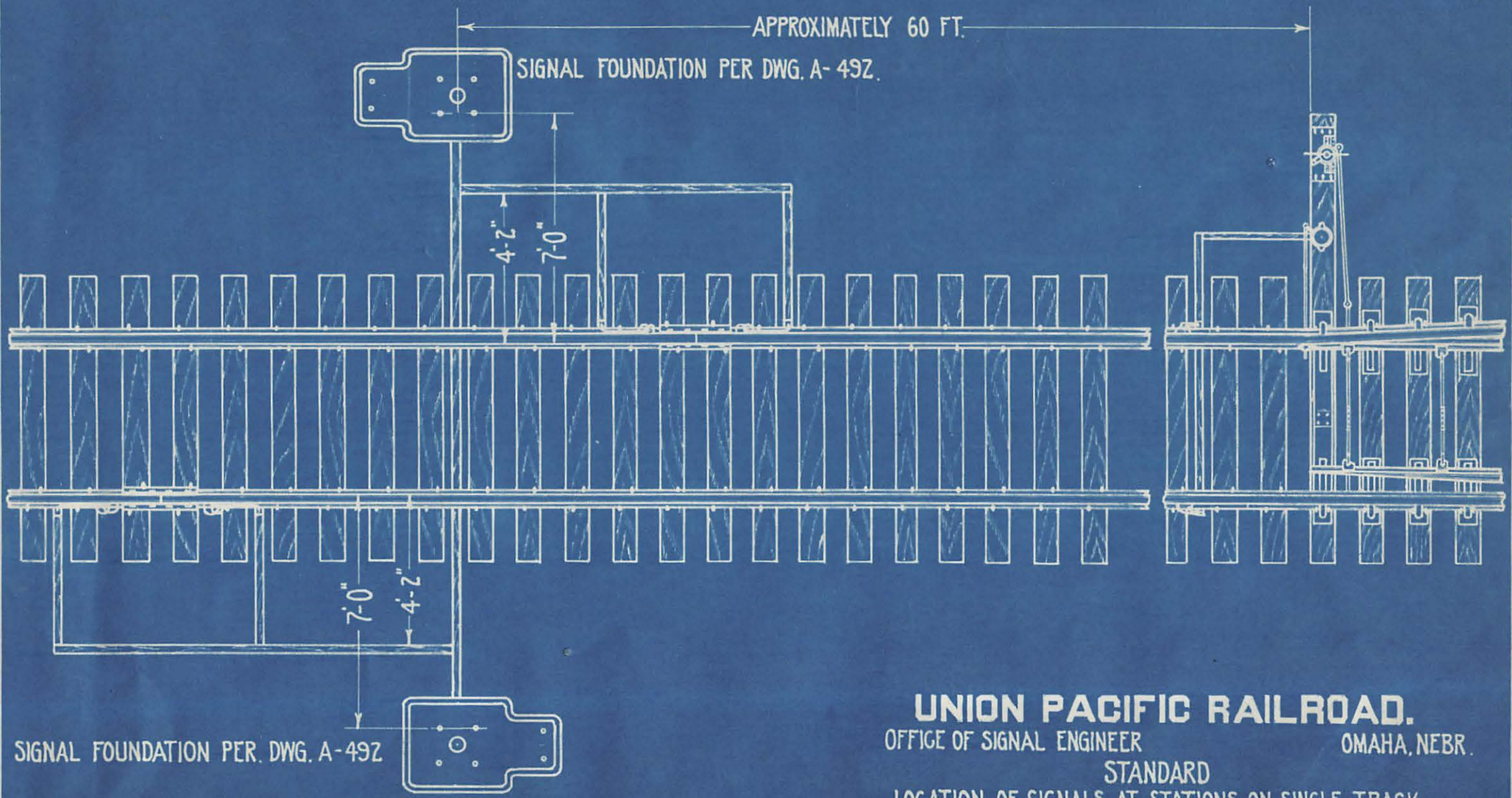
UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

# STANDARD
# POLE LINE CONSTRUCTION

Scale: 3/4"=12"

Revised 3-23-

REVISED. MARCH 18, 1920. | A-410




# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

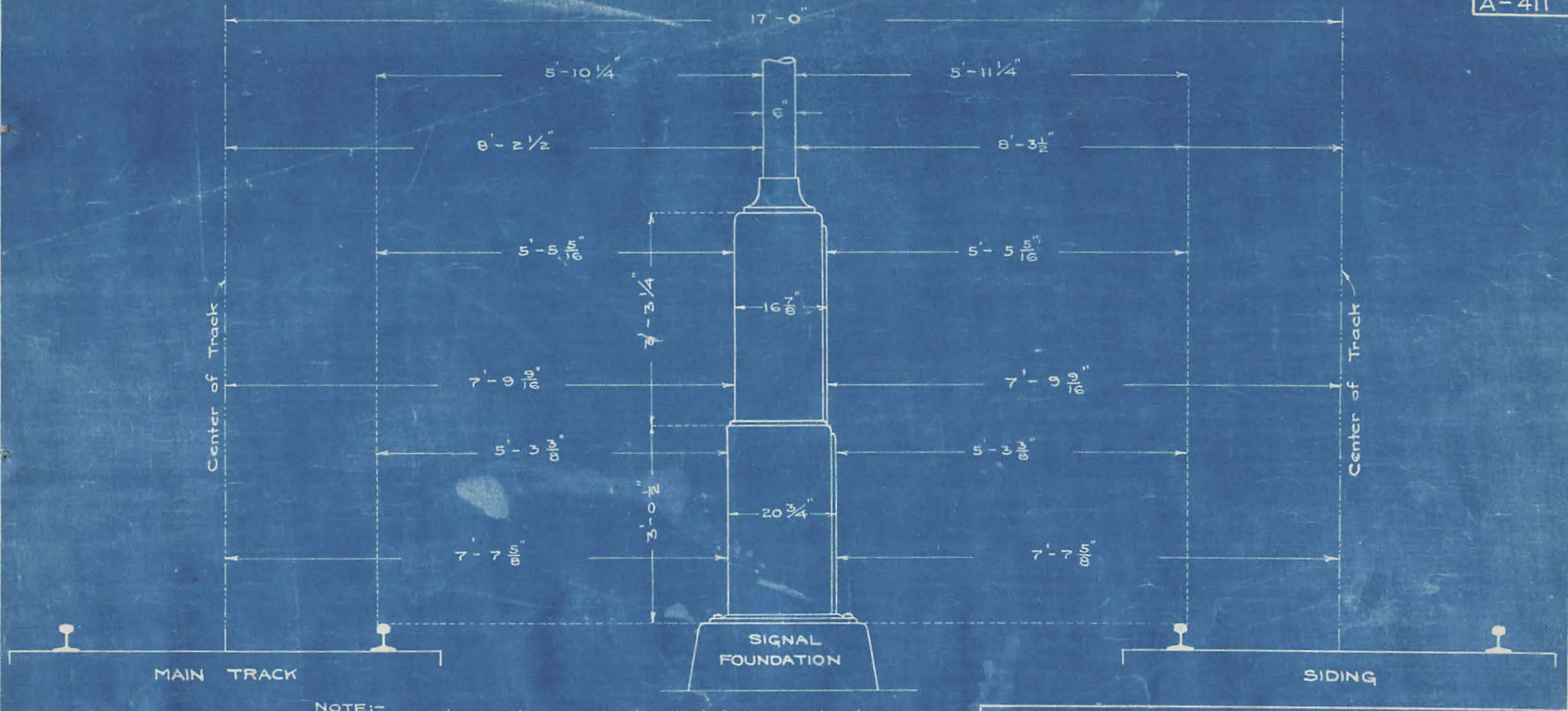
STANDARD

LOCATION OF SIGNALS AT STATIONS ON SINGLE TRACK.

SCALE 1/4" = 1 FT. — MARCH 18 1920

DRAWN BY R.A.F. CHECKED BY R.O.F. APPROVED F. W. Pflegings

A-411




NOTE:- Signals must never be located between tracks when the distance from the center of one track to the center of the other is less than 17 feet.

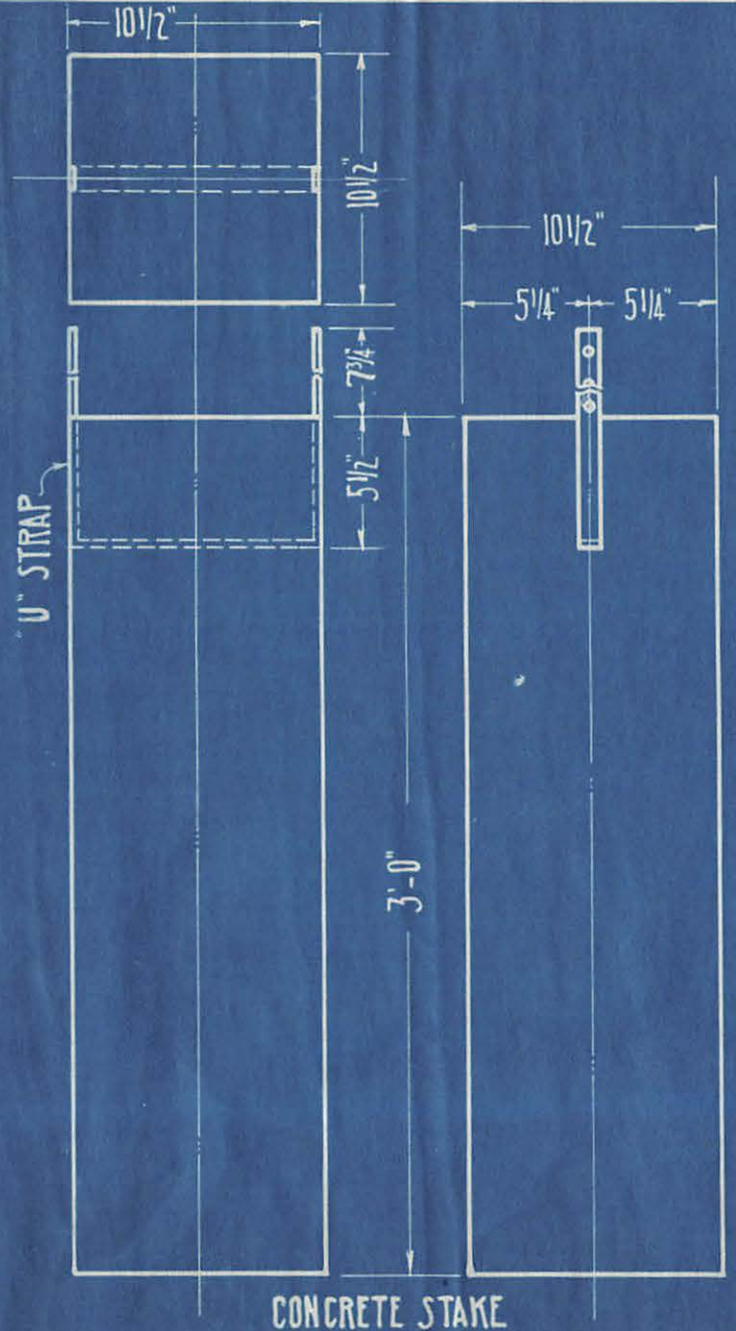
UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

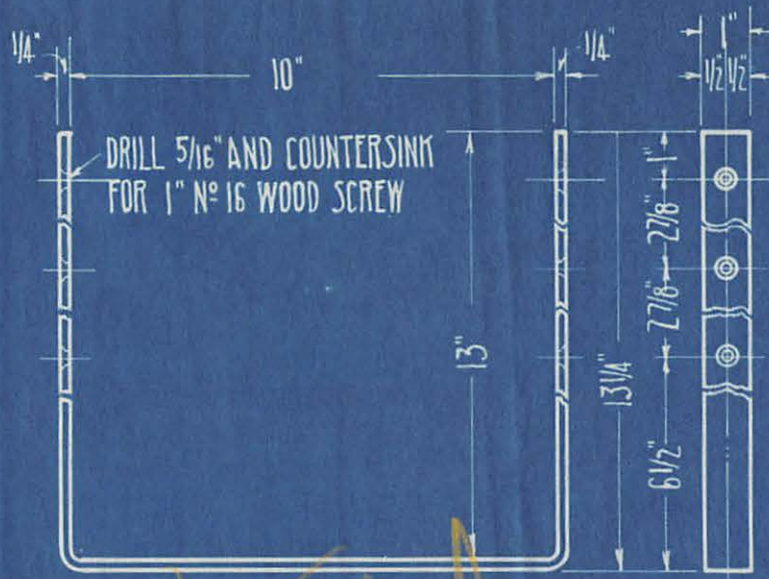
L.H.
G.E.M.
J.C.Young.
March 8 7.

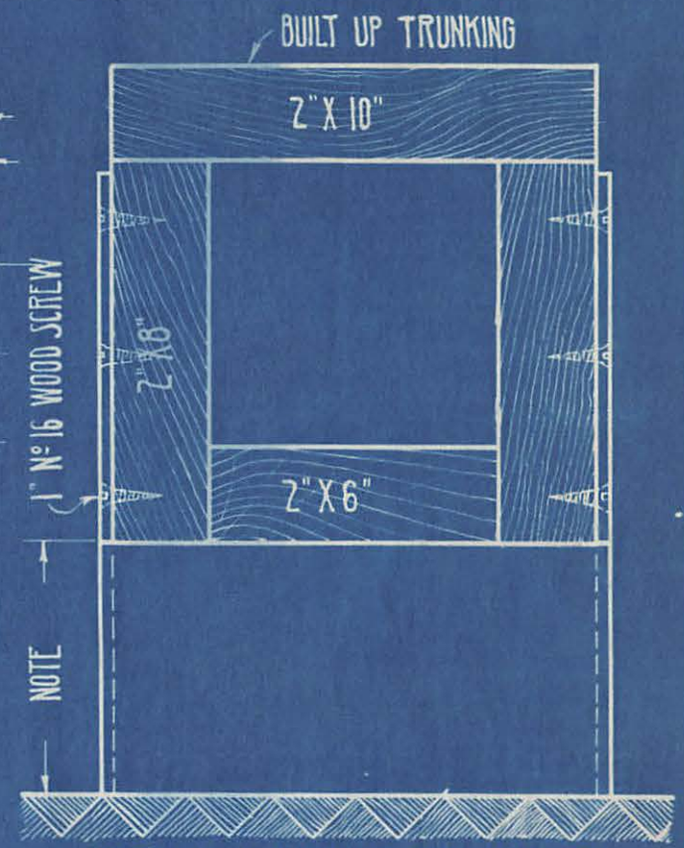
STANDARD
CLEARANCE FOR SIGNALS LOCATED BETWEEN TRACKS

Scale:- 1/2" = 1 ft.

A-412




METHOD OF FASTENING TRUNKING TO CONCRETE STAKE

NOTE: TO BE DETERMINED BY LOCAL CONDITIONS.

# UNION PACIFIC RAILROAD

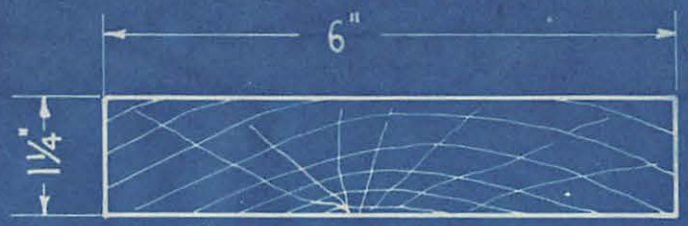
OFFICE OF SIGNAL ENGINEER — OMAHA, NEB.

STANDARD

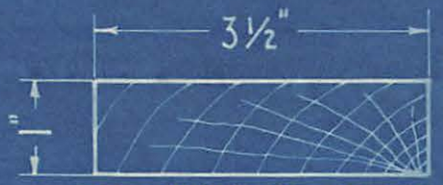
CONCRETE TRUNKING STAKE FOR BUILT UP TRUNKING

SCALE 1 1/2" = 1FT. & 3" = 1FT. — MARCH 20, 1919

DRAWN BY RAB. CHECKED BY R.L.E. APPROVED F.W.P.



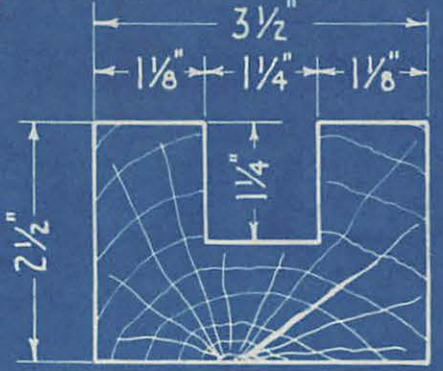

No. 6 TRUNKING COVER



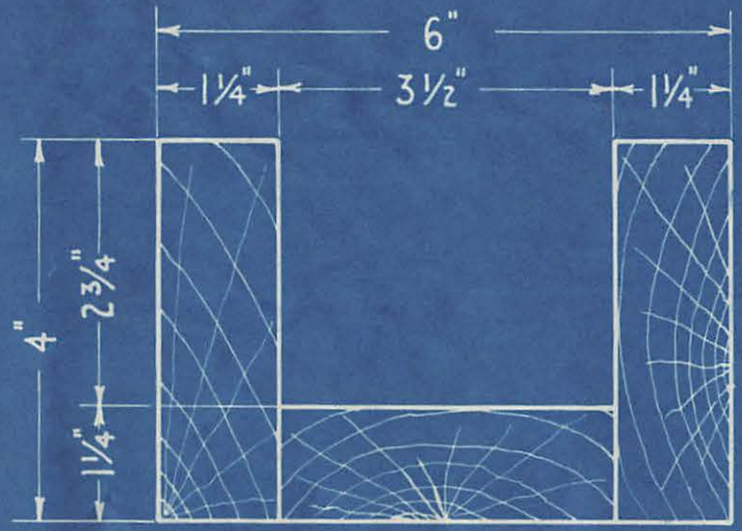

STD. TRUNKING COVER

NOTE:
TRUNKING AND COVER TO BE MADE OF HARD PINE, FIR, CYPRESS OR REDWOOD AS SPECIFIED. TRUNKING AND COVER TO BE SURFACED ALL OVER AND DIMENSIONS MUST BE AS SHOWN AFTER SURFACING.

Void




STD. TRUNKING




No. 6 TRUNKING

**UNION PACIFIC RAILROAD.**

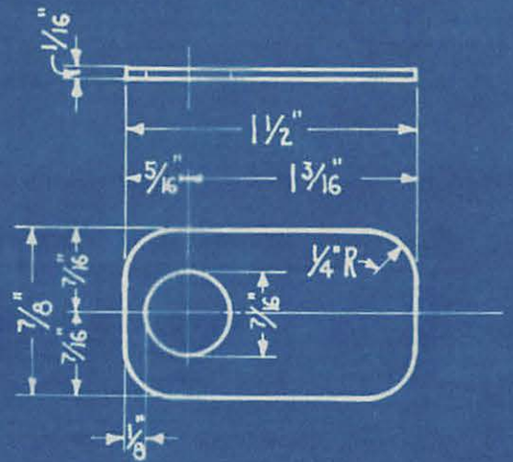
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD
TRUNKING AND COVER.

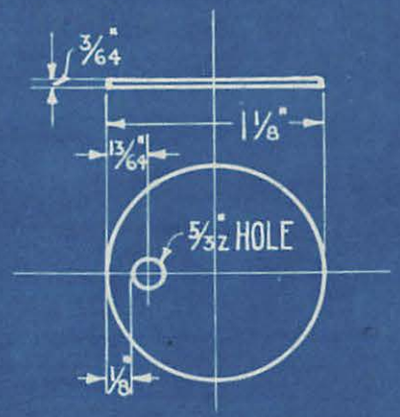
SCALE HALF SIZE — MARCH 18, 1920.

DRAWN BY RAF CHECKED BY RAF APPROVED F. W. Pfleging

| | | | |
|---|---|---|---|
| | REVISED: JAN. 26, 1920. | REVISED: APRIL 16, 1919. | A-420 |




HARD FIBRE TAG
FOR MARKING INSULATED WIRES




ALUMINUM TAG
TO BE FASTENED TO CROSS ARMS
FOR MARKING POLE LINE WIRES

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA NEBR.

## STANDARD
## TAGS FOR SIGNAL CIRCUITS

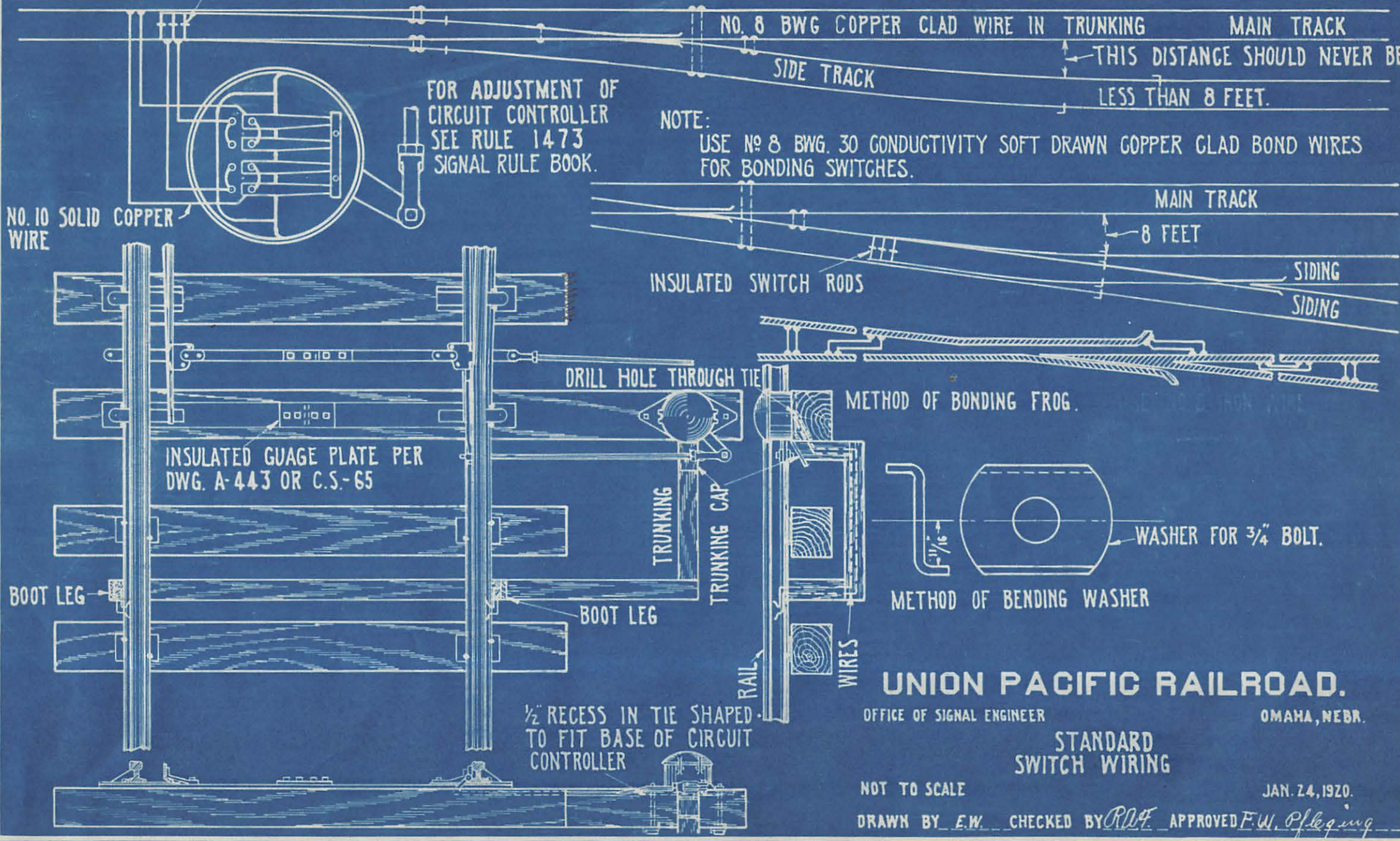
SCALE FULL SIZE — APRIL 16 1919.

DRAWN BY R.A.F. CHECKED BY R.A.F. APPROVED F. W. Hegeman

INSULATED SWITCH ROD PER DWG. C.S.-65

REVISED JAN. 24, 1920.

A-423


NO. 8 BWG COPPER CLAD WIRE IN TRUNKING
MAIN TRACK
SIDE TRACK
THIS DISTANCE SHOULD NEVER BE LESS THAN 8 FEET.
FOR ADJUSTMENT OF CIRCUIT CONTROLLER SEE RULE 1473 SIGNAL RULE BOOK.
NOTE:
USE № 8 BWG. 30 CONDUCTIVITY SOFT DRAWN COPPER CLAD BOND WIRES FOR BONDING SWITCHES.
NO. 10 SOLID COPPER WIRE
MAIN TRACK
8 FEET
INSULATED SWITCH RODS
SIDING
SIDING
DRILL HOLE THROUGH TIE
METHOD OF BONDING FROG.
INSULATED GUAGE PLATE PER DWG. A-443 OR C.S.-65
TRUNKING
TRUNKING CAP
BOOT LEG
BOOT LEG
RAIL
WIRES
11/16
WASHER FOR 3/4" BOLT.
METHOD OF BENDING WASHER
½" RECESS IN TIE SHAPED TO FIT BASE OF CIRCUIT CONTROLLER

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

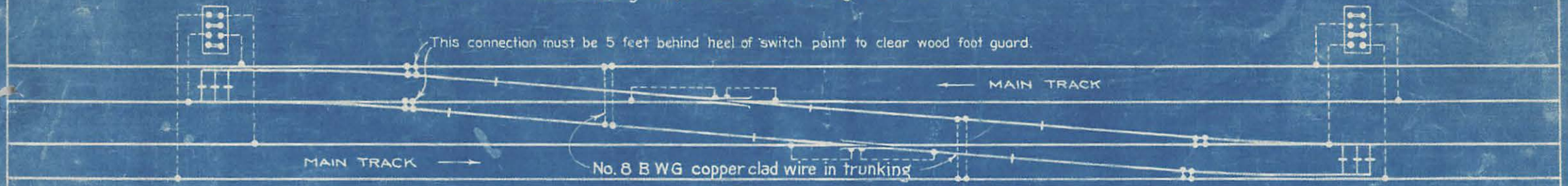
## STANDARD SWITCH WIRING

NOT TO SCALE — JAN. 24, 1920.

DRAWN BY E.W. CHECKED BY R.W.F. APPROVED F.W. Pfleging

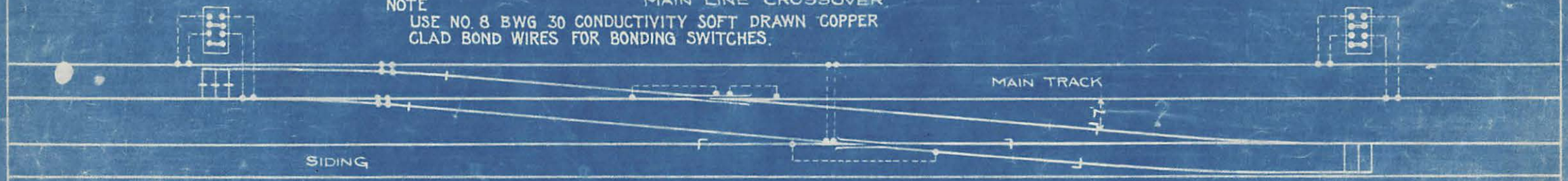
A-424

NOTE:- This drawing supersedes drawing No. S.E. 5016.

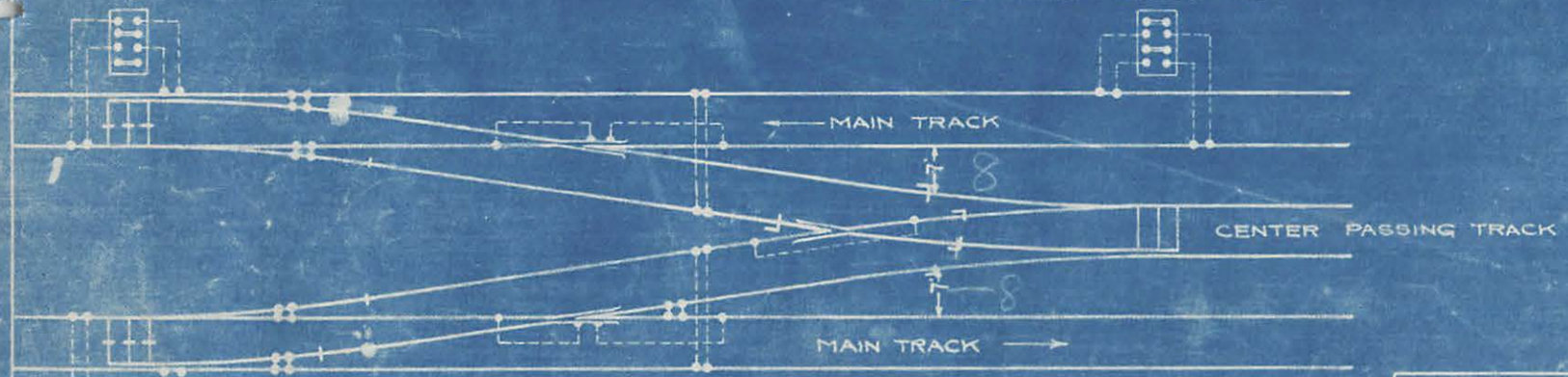

This connection must be 5 feet behind heel of switch point to clear wood foot guard.
MAIN TRACK
MAIN TRACK
No. 8 B WG copper clad wire in trunking

MAIN LINE CROSSOVER

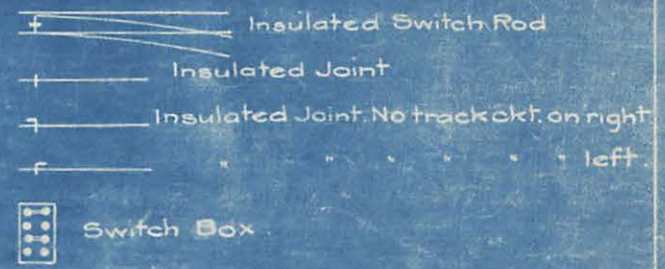
NOTE
USE NO. 8 BWG 30 CONDUCTIVITY SOFT DRAWN COPPER CLAD BOND WIRES FOR BONDING SWITCHES.




SIDE TRACK CROSSOVER




CENTER PASSING TRACK CROSSOVER




Revised 3-23-17

Revised: Dec. 11, 1916.
REVISED FEB. 2 1920.
REVISED JUNE 8 1920.

L.H.

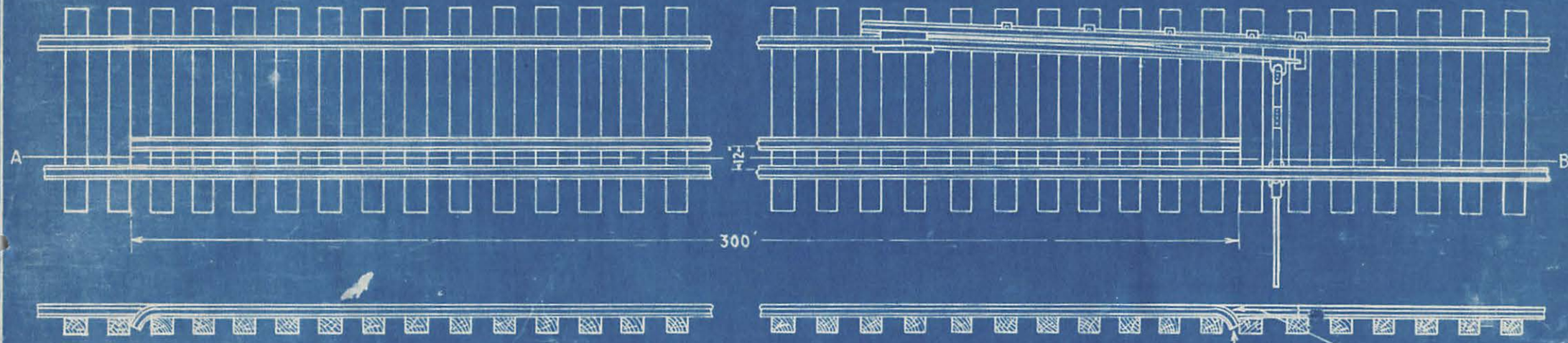
April 26 7.

UNION PACIFIC RAILROAD
Office of Signal Engineer

STANDARD
CROSSOVER WIRING

Not to scale

A-430




SECTION AT A-B.

Bend rail as shown.

Note:-
End to have the highest point below line of top of tie

Revised Oct. 28. 1916.
No. changed.
Revised Oct. 18, 1917.
Revised Oct. 25, 1917.

Revised Dec 18-1911

Drawn by R.A.F.
Checked by C.D.D.
Approved
July 5, 1910.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

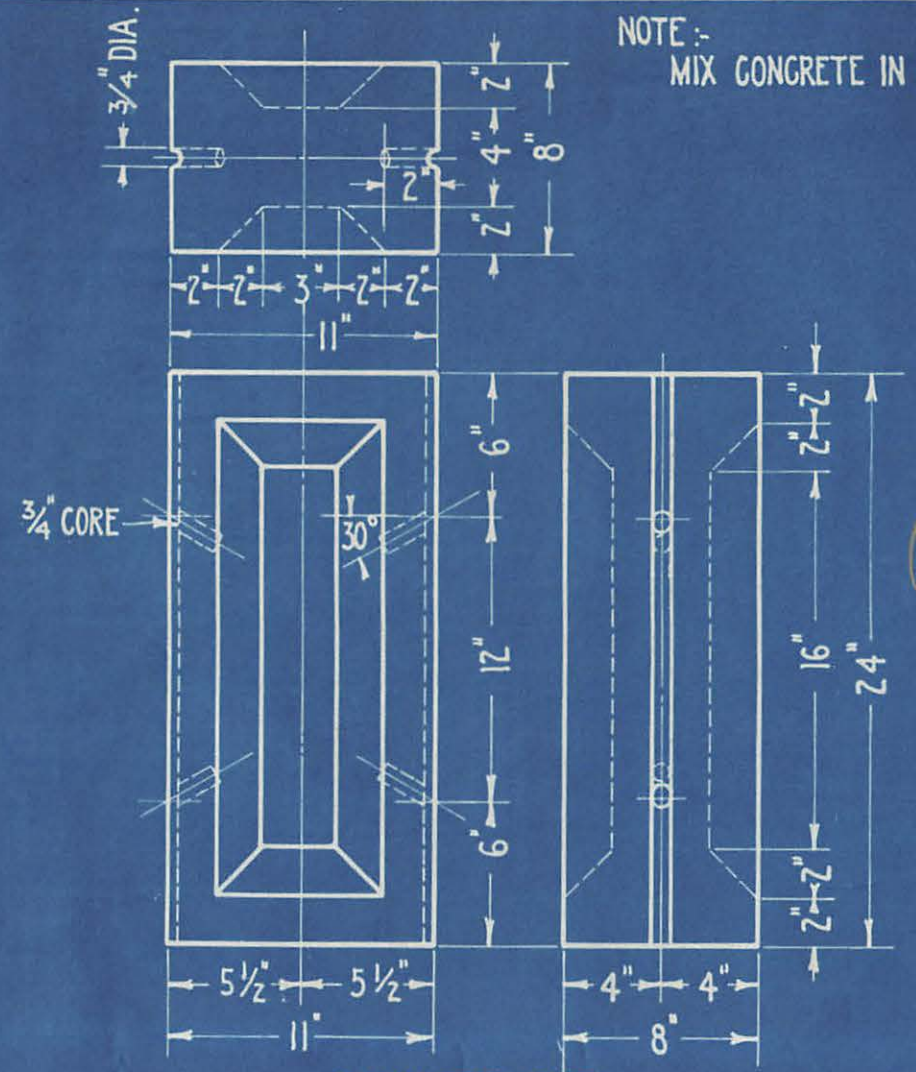
METHOD OF PLACING GAURD RAIL AT INTERLOCKING DERAIL.

Revised :-

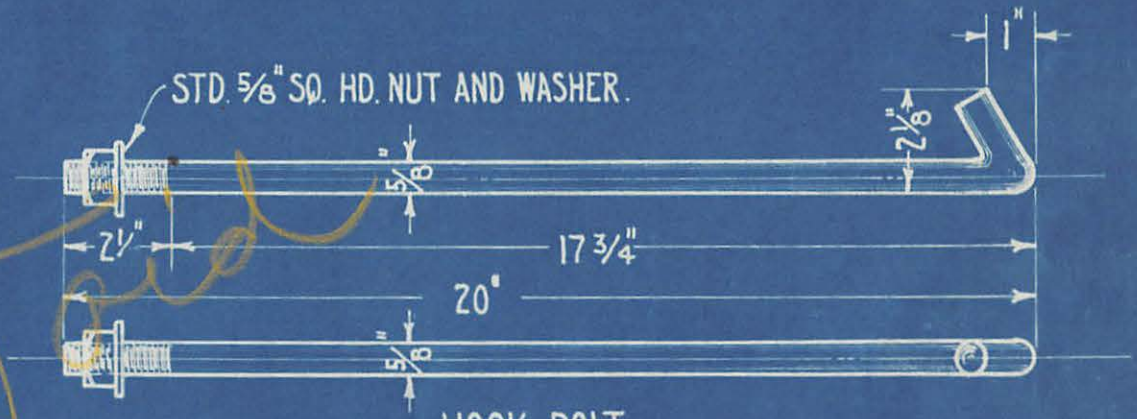
Scale 3/16 = 1 ft.

REVISED:- MARCH 25, 1919. | A-431

NOTE:-
MIX CONCRETE IN THE FOLLOWING PROPORTIONS:-
1 PART CEMENT
2 PART SAND
3 PART CRUSHED ROCK




CONCRETE PIER
SCALE 1½" = 1 FT.




HOOK BOLT.
SCALE 3" = 1 FT.

SEE DRAWING B-1779 FOR FORM.

NOTE:-
ONE PIER REQUIRED FOR PIPE LINES UNDER 7 WAY
TWO PIERS REQUIRED FOR 7 OR MORE PIPE LINES.

Supersedes A 340

**UNION PACIFIC RAILROAD.**

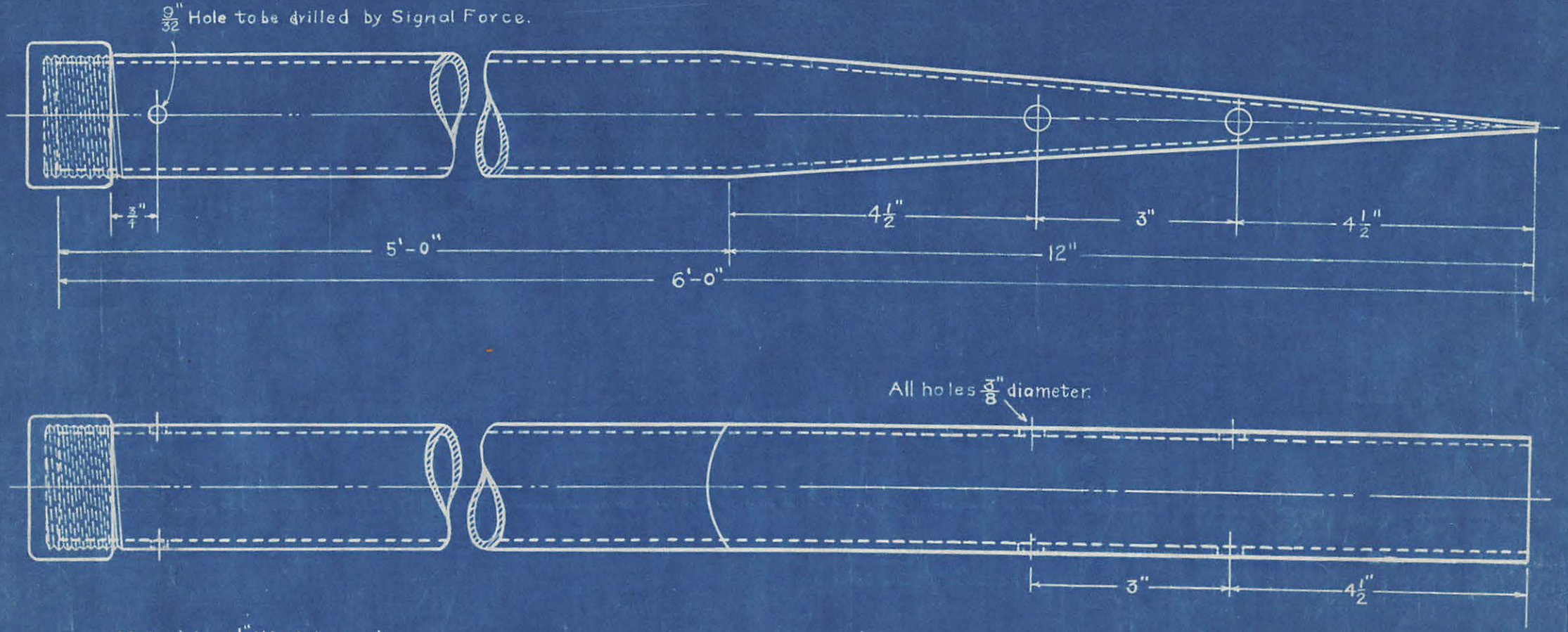
OFFICE OF SIGNAL ENGINEER. OMAHA NEBR.

CONCRETE PIER AND HOOK BOLT
FOR PIPE CARRIER FOUNDATION

SCALE AS NOTED MARCH 25, 1919.

DRAWN BY R.A.F. CHECKED BY R.A.F. APPROVED F.H.P.

A-436




Material:- 1½" Wrot iron pipe.

Revised Aug. 2, 1916.

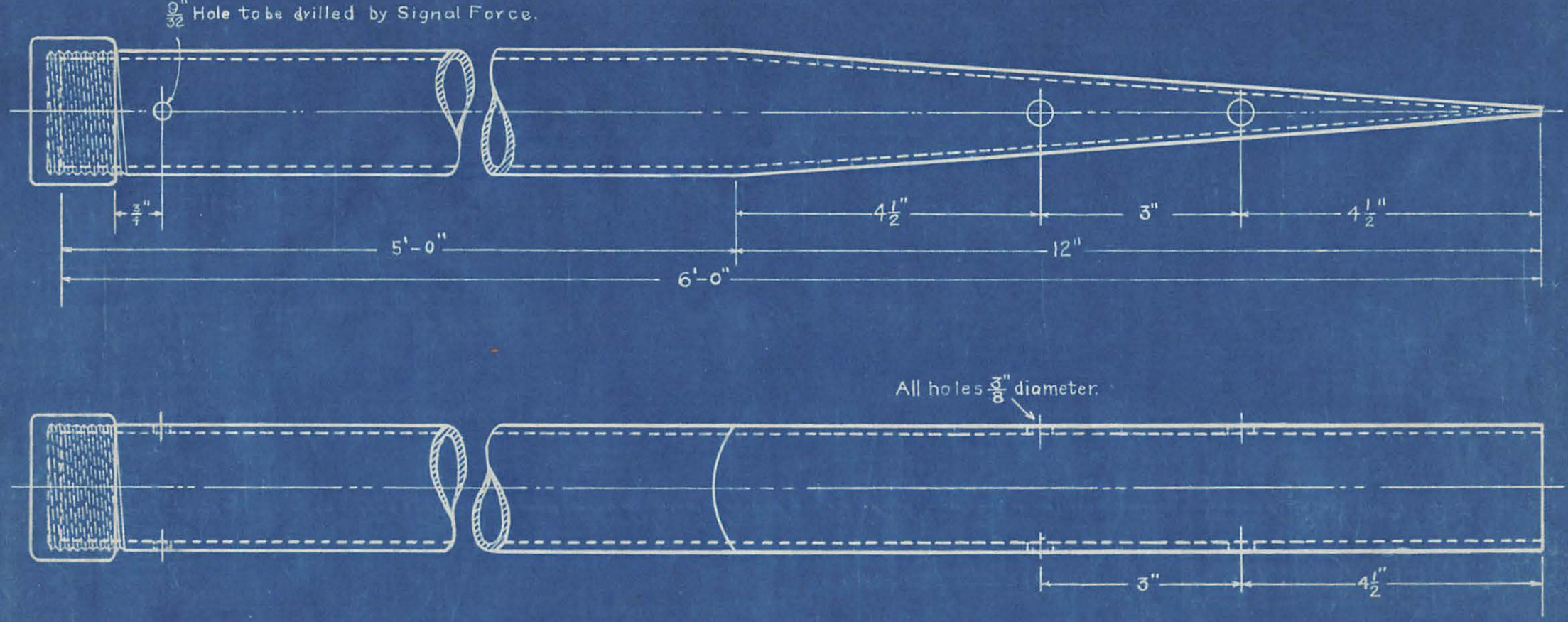
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by I.T.K.
Checked by L.D.D.
Approved F.H.P.
July 19, 1916.

GROUND PIPE.

Scale half size.

A-436




Material:- 1½" Wrot iron pipe.

Revised Aug. 26.

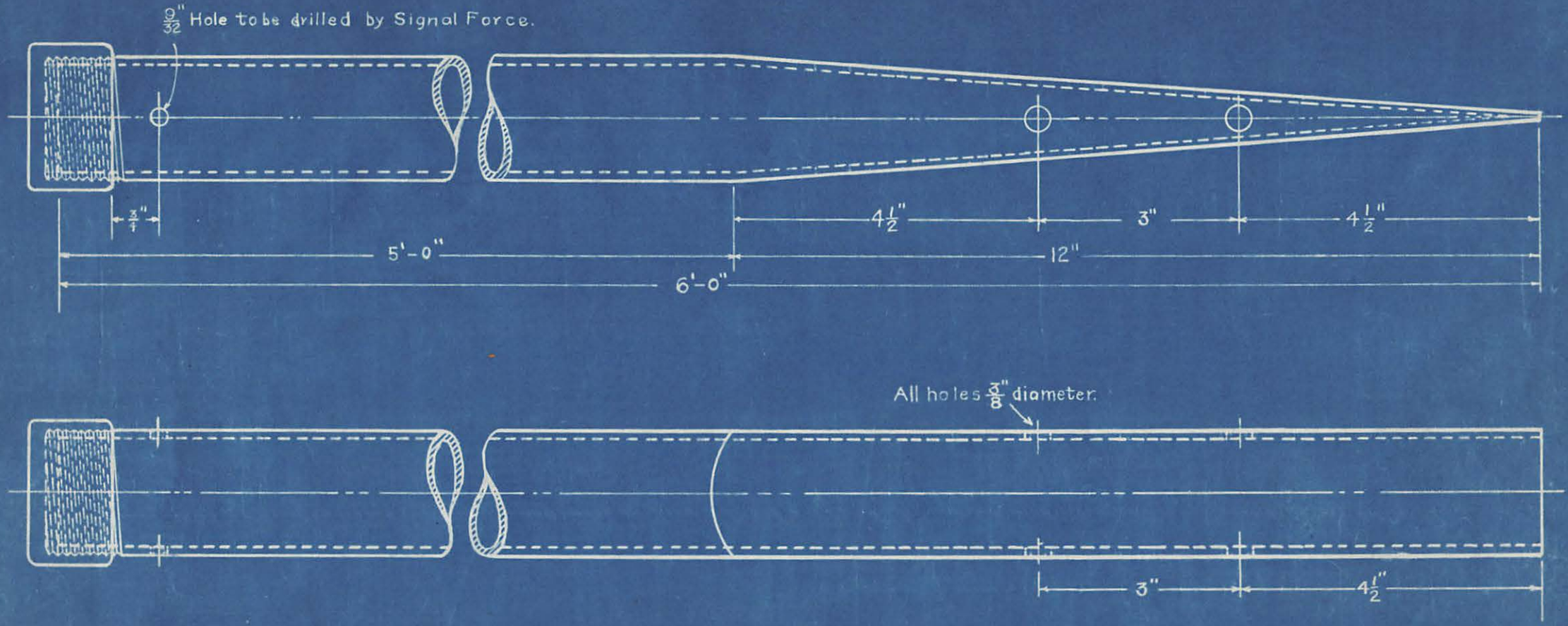
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by I.T.K.
Checked by L.D.D.
Approved F.H.P.
July 19, 1916.

GROUND PIPE.

Scale half size.

A-436




Material:- 1½" Wrot iron pipe.

Revised Aug. 23, 1916.

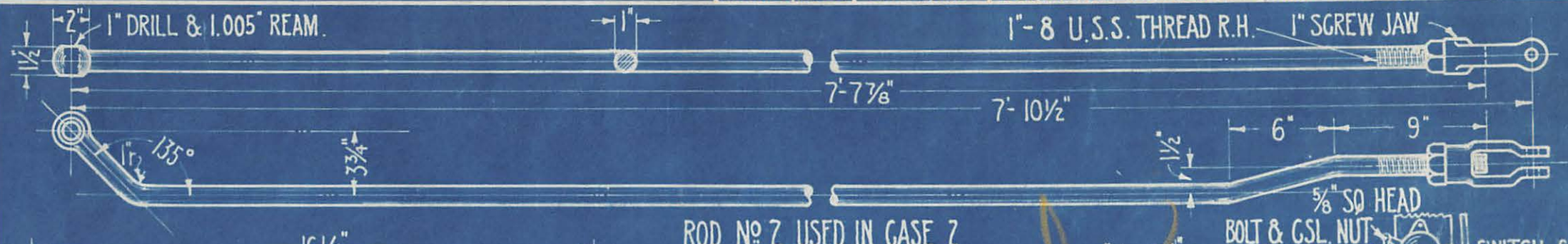
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

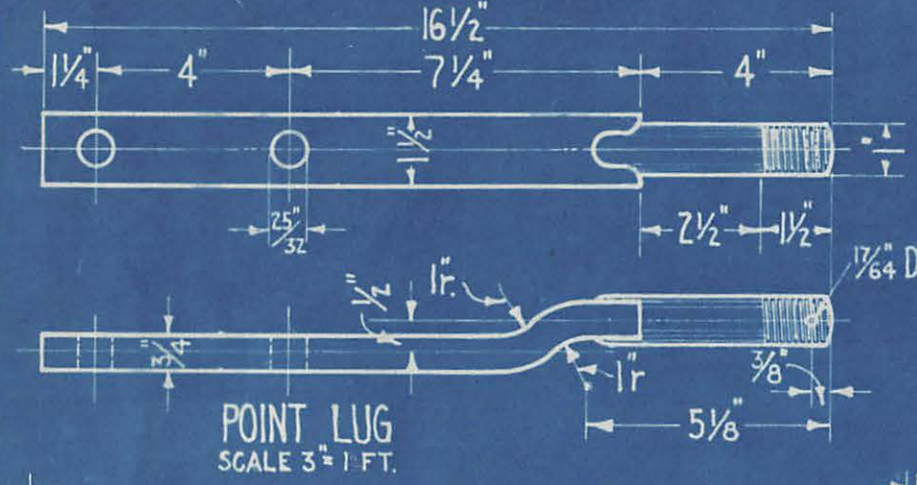
Drawn by I.T.K.
Checked by L.D.D.
Approved F.H.P.
July 19, 1916.

GROUND PIPE.

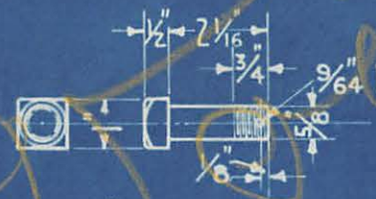
Scale half size.

| REVISED APRIL 5, 1920. | REVISED JAN. 24, 1920 | REVISED DEC. 24. 1919. | REVISED NOV. 10. 1919. | REVISED APRIL 14. 1919. | A-437 |
|---|---|---|---|---|---|




POINT LUG
SCALE 3" = 1 FT.

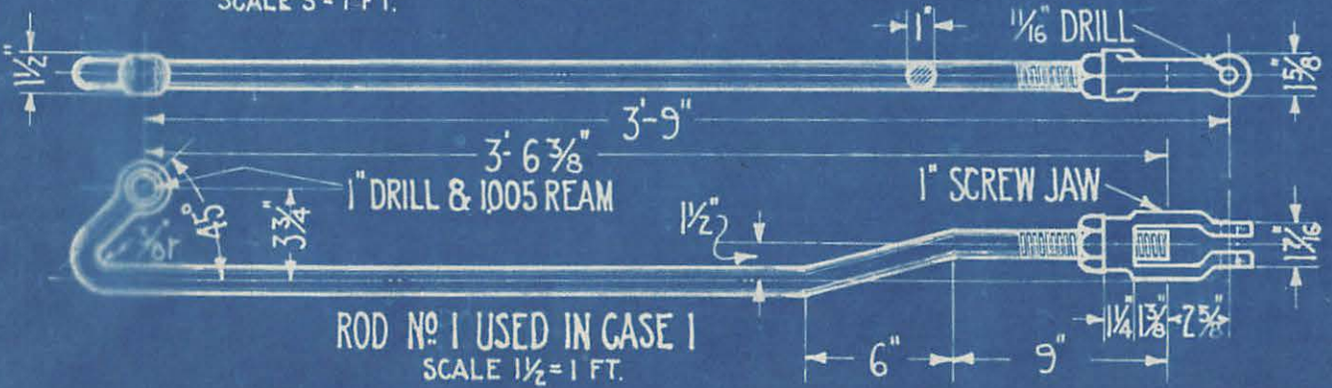



ROD Nº 2 USED IN CASE 2
SCALE 1½" = 1 FT.

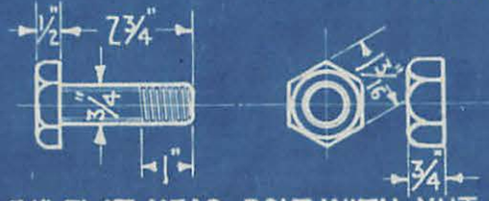
⅝" SQ HEAD BOLT.
SCALE 3" = 1 FT.

CASTLE HEAD NUT.
SCALE 3" = 1 FT.

1" HEX NUT
SCALE 3" = 1 FT.




ROD Nº 1 USED IN CASE 1
SCALE 1½" = 1 FT.




¾" FLAT HEAD BOLT WITH NUT.
SCALE 3" = 1 FT.

¾" x 2¾" FLAT HEAD BOLTS

GENERAL ARRANGEMENT.
NOT TO SCALE.

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

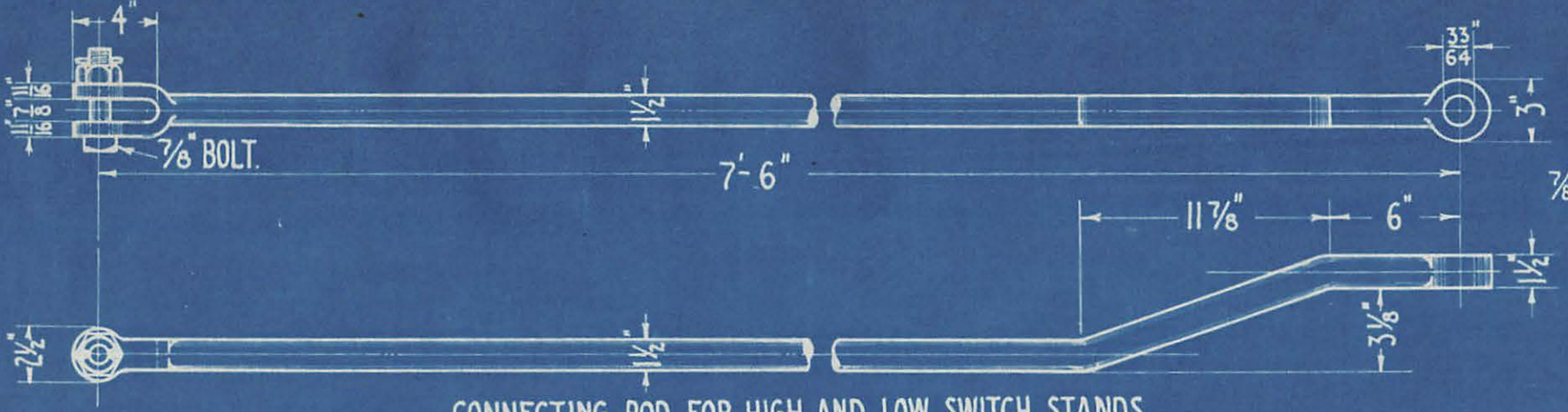
STANDARD

## SWITCH CIRCUIT CONTROLLER ROD & CONNECTIONS

SCALE AS NOTED — DEC 24 1919.

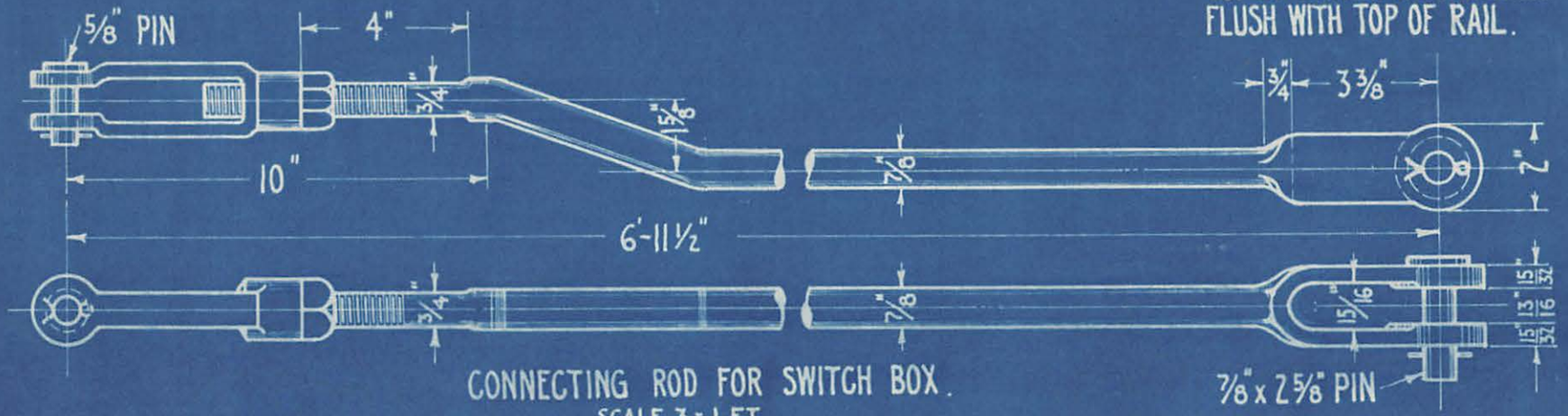
DRAWN BY RAF CHECKED BY APPROVED

REVISED SEPT. 19 1919. **A-438**

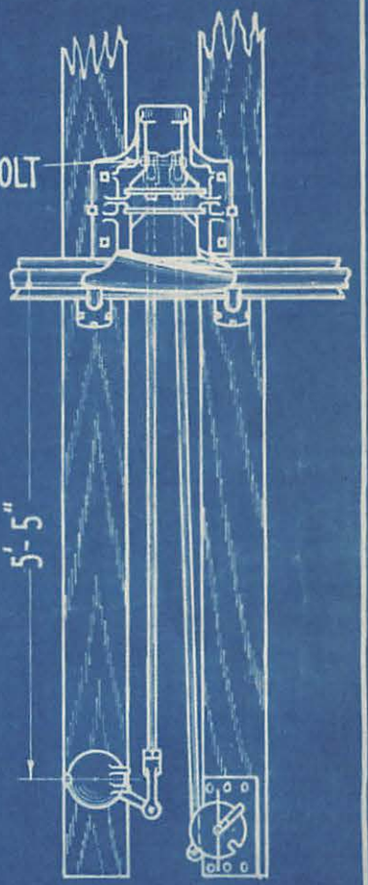



CONNECTING ROD FOR HIGH AND LOW SWITCH STANDS.
SCALE 1½ = 1 FT.

NOTE:
TOP OF SWITCH INSTRUMENT
FLUSH WITH TOP OF RAIL.




CONNECTING ROD FOR SWITCH BOX.
SCALE 3 = 1 FT.




SCALE ½ = 1 FT.

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER. OMAHA, NEBR.

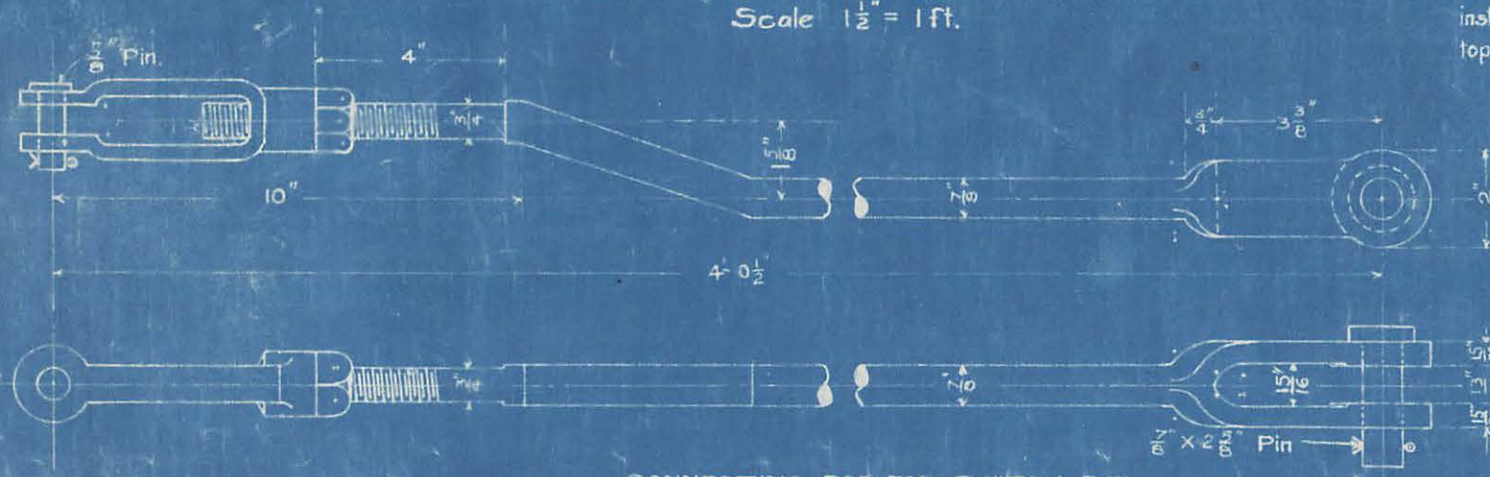
CONNECTING RODS
FOR HIGH AND LOW SWITCH STANDS AND SWITCH BOXES
WHEN USED IN CONJUNCTION WITH HAYES DERAILS.

SCALE AS NOTED SEPT. 19 1919.

DRAWN BY R.A.F. CHECKED BY R.A.F. APPROVED F.W. O'Leary

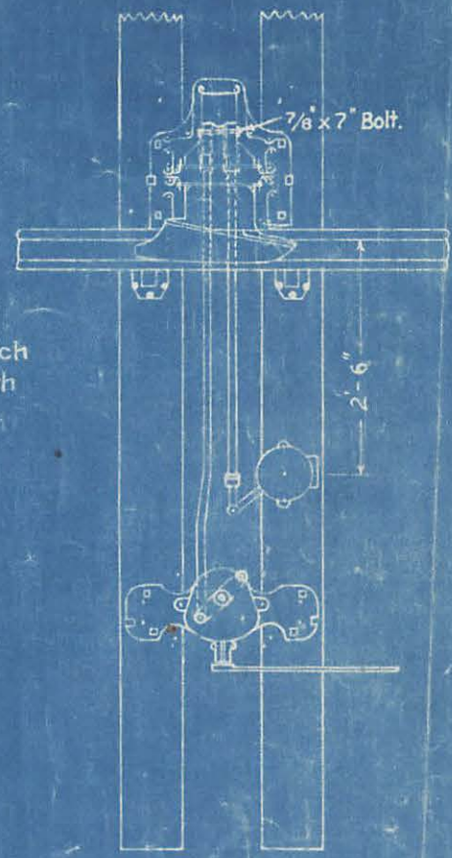
A-439

CONNECTING ROD FOR GROUND SWITCH STAND
Scale 1½" = 1 ft.




CONNECTING ROD FOR SWITCH BOX.
Scale 3" = 1 ft.

Note :- Top of switch instrument flush with top of rail.




Scale ½" = 1 ft.

NOTE:
TO BE USED BETWEEN TRACKS ONLY.

Revised Oct. 23. 1916.
No. changed.

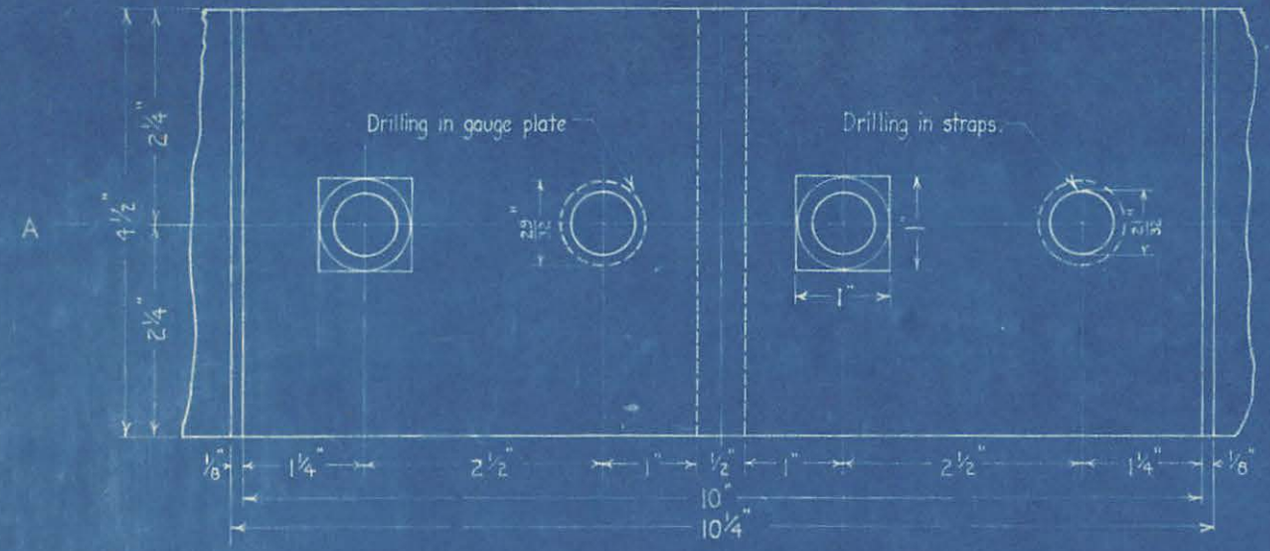
UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

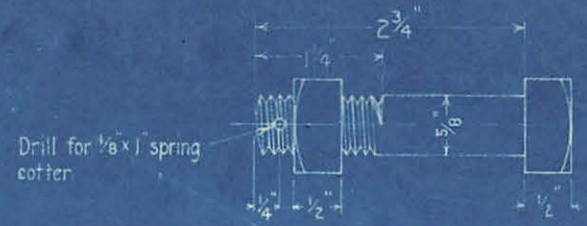
Drawn by F. L. B
Checked by L. D. D.
Approved F. W. P.
July 7-1913.

CONNECTING RODS
FOR GROUND SWITCH STAND AND SWITCH BOX
WHEN USED IN CONJUNCTION WITH HAYES DERAIL.

Scale as noted

A-443

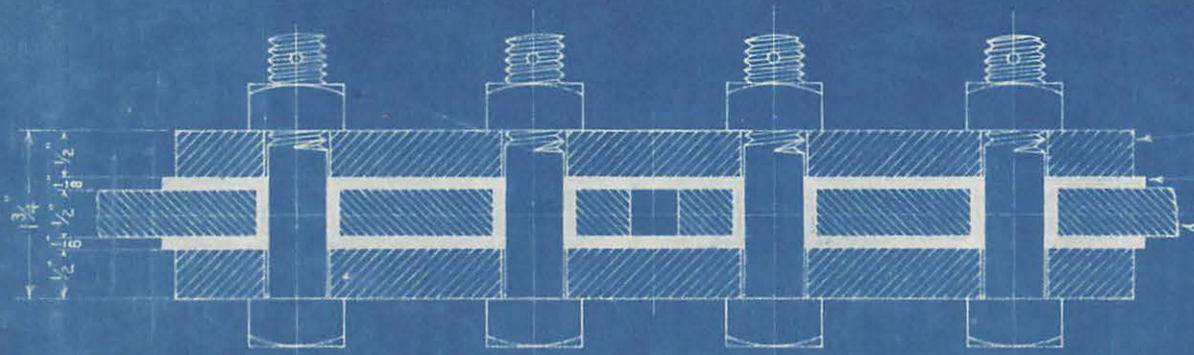



Drill for ⅛" x 1" spring cotter

BOLT.
4 Required.

HARD FIBRE BUSHING.
4 Required.




Wrought iron strap.
Hard fibre strap.
Gauge plate.

SECTION THROUGH A - B

Note: This insulation to be used only on gauge plates now in service. All new gauge plates to be insulated at shop as shown in drawing No. C.S.65.

Revised Oct 30 1916
No. changed.

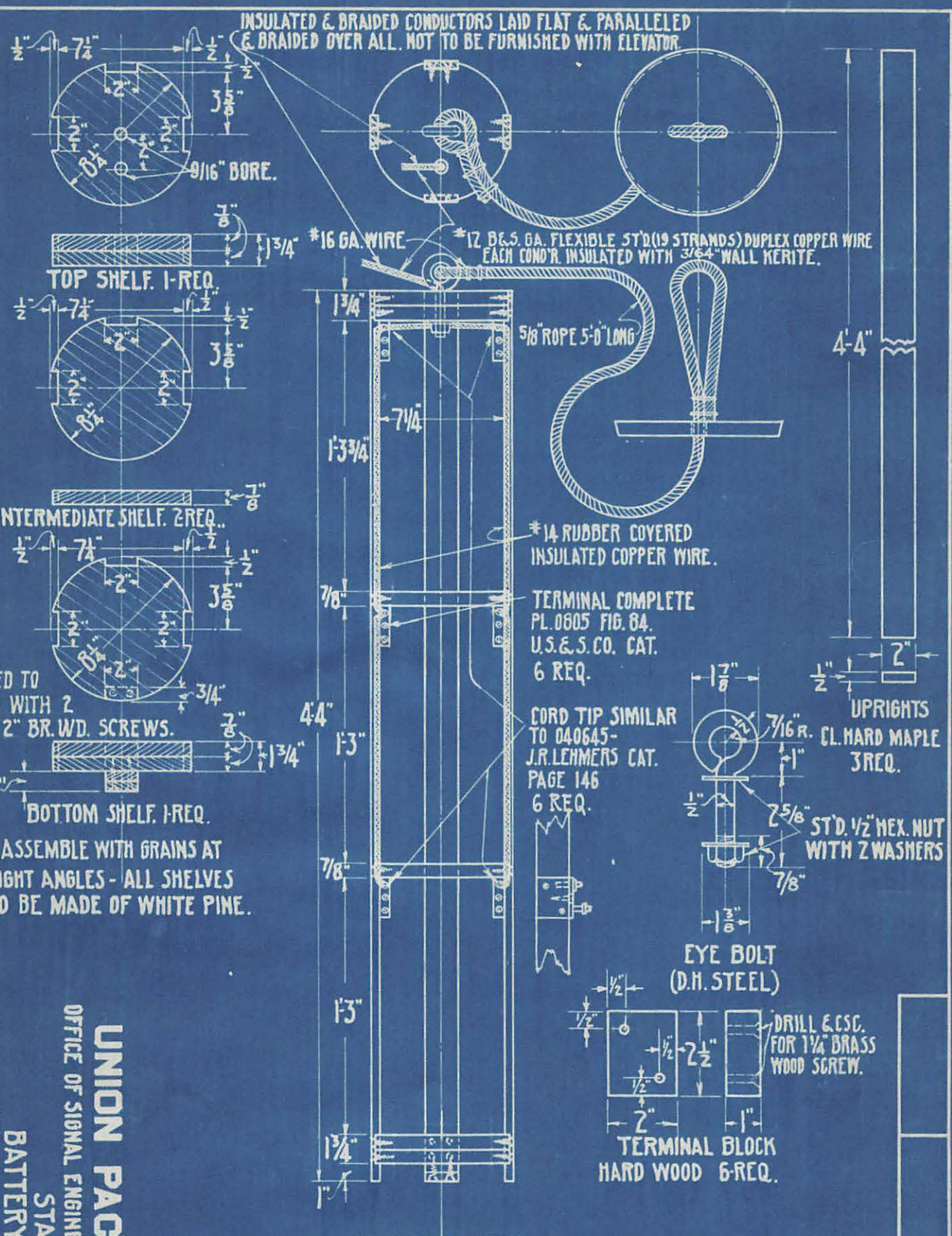
Supersedes A 6554

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by W.B.H.
Checked by C.A.A.
Approved J. Young
October 2, 1909

INSULATION FOR GAUGE PLATE.

Scale half size.


INSULATED & BRAIDED CONDUCTORS LAID FLAT & PARALLELED & BRAIDED OVER ALL. NOT TO BE FURNISHED WITH ELEVATOR.
9/16" BORE.
TOP SHELF. 1-REQ.
#16 GA. WIRE
#17 B.&S. GA. FLEXIBLE ST'D. (19 STRANDS) DUPLEX COPPER WIRE EACH COND'R. INSULATED WITH 3/64" WALL KERITE.
5/8" ROPE 5'-0" LONG
4'-4"
INTERMEDIATE SHELF. 2 REQ.
#14 RUBBER COVERED INSULATED COPPER WIRE.
TERMINAL COMPLETE PL. 0805 FIG. 84. U.S.&S.CO. CAT. 6 REQ.
CLEAT SCREWED TO BOTTOM WITH 2 Nº 10 X 2" BR. WD. SCREWS.
CORD TIP SIMILAR TO 040645- J.R. LEHMERS CAT. PAGE 146 6 REQ.
UPRIGHTS CL. HARD MAPLE 3 REQ.
BOTTOM SHELF. 1-REQ.
ST'D. 1/2" HEX. NUT WITH 2 WASHERS
EYE BOLT (D.H. STEEL)
ASSEMBLE WITH GRAINS AT RIGHT ANGLES - ALL SHELVES TO BE MADE OF WHITE PINE.
DRILL & C'SK. FOR 1 1/4" BRASS WOOD SCREW.
TERMINAL BLOCK HARD WOOD 6-REQ.
ELEVATOR COMPLETE.
NOTE: TO BE USED IN R.S.A. AND U.S.&S.CO. BATTERY CHUTE.
BR. WD. SCREWS USED THROUGH OUT. PAINT TWO (2) COATS WITH BLACK ASPHALTUM.
3/4" BORE.
FROST BOARD SOFT WOOD 1-REQ.

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER.
OMAHA, NEBR.

STANDARD.

BATTERY CHUTE ELEVATOR.

SCALE 1 1/2" & 3" = 1 FT.

AUGUST 1, 1919.

DRAWN BY R.A.B. CHECKED BY _____ APPROVED _____

A-454

| | REVISED JULY 30, 1919 | REVISED APRIL 1, 1919 | A-455 |
|---|---|---|---|

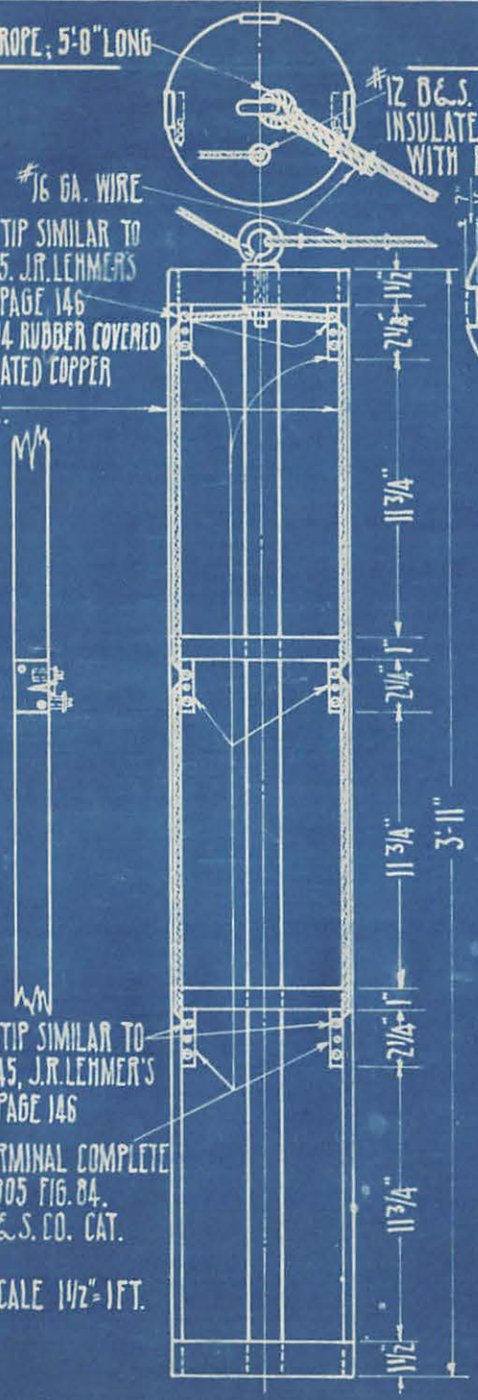
5/8" ROPE; 5'-0" LONG

#12 B&S. GA. FLEXIBLE ST'D (19 STRANDS) DUPLEX COPPER WIRE EACH COND'R. INSULATED WITH 3/64" WALL KERITE. INSULATED & BRAIDED CONDUCTORS LAID FLAT & PARALLELED & BRAIDED OVER ALL. NOT TO BE FURNISHED WITH ELEVATOR.

#16 GA. WIRE

CORD TIP SIMILAR TO 040645. J.R. LEHMERS CAT. PAGE 146

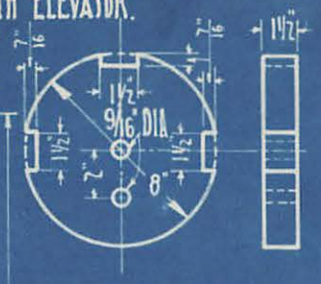
#14 RUBBER COVERED INSULATED COPPER WIRE.



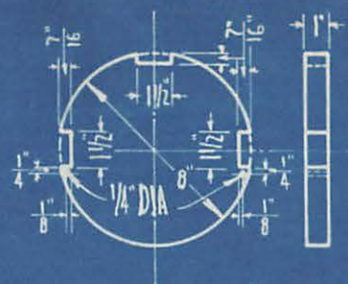

CORD TIP SIMILAR TO 040645, J.R. LEHMER'S CAT. PAGE 146

TERMINAL COMPLETE PL. 0805 FIG. 84. U.S. & S. CO. CAT.

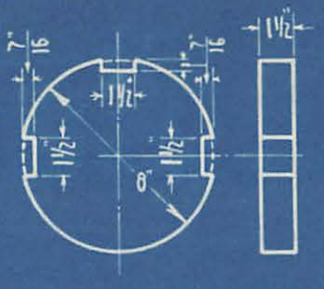
SCALE 1 1/2" = 1 FT.



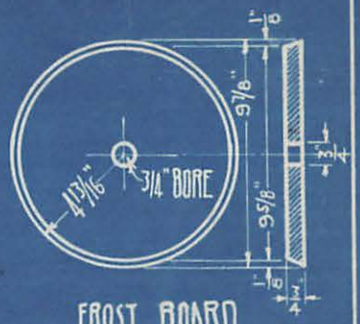

TOP
SOFT WOOD: 1 REQ.




CENTER SHELVES
SOFT WOOD: 2 REQ.



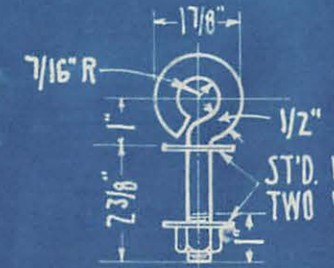

BOTTOM
SOFT WOOD: 1 REQ.




FROST BOARD
SOFT WOOD: 1 REQ.

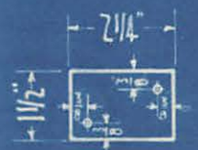
SCALE 1 1/2" = 1 FT.

SIDE PIECES
CLEAR HARD MAPLE: 3 REQUIRED




ST'D. 1/2" HEX. NUT WITH TWO WASHERS

EYE BOLT
SCALE 3" = 1 FT.




TERMINAL BLOCK. HARD WOOD. 6 REQ.
SCALE 3" = 1 FT.

DRILL AND COUNTERSINK FOR 3/4" BRASS WOOD SCREW

NOTE: NOT TO BE USED ON NEW CONSTRUCTION. TO BE USED WITH BZ CO. OR HALL BATTERY CHUTE.

NOTE: COPPER NAILS USED THROUGHOUT PAINT TWO COATS WITH BLACK ASPHALTUM.

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

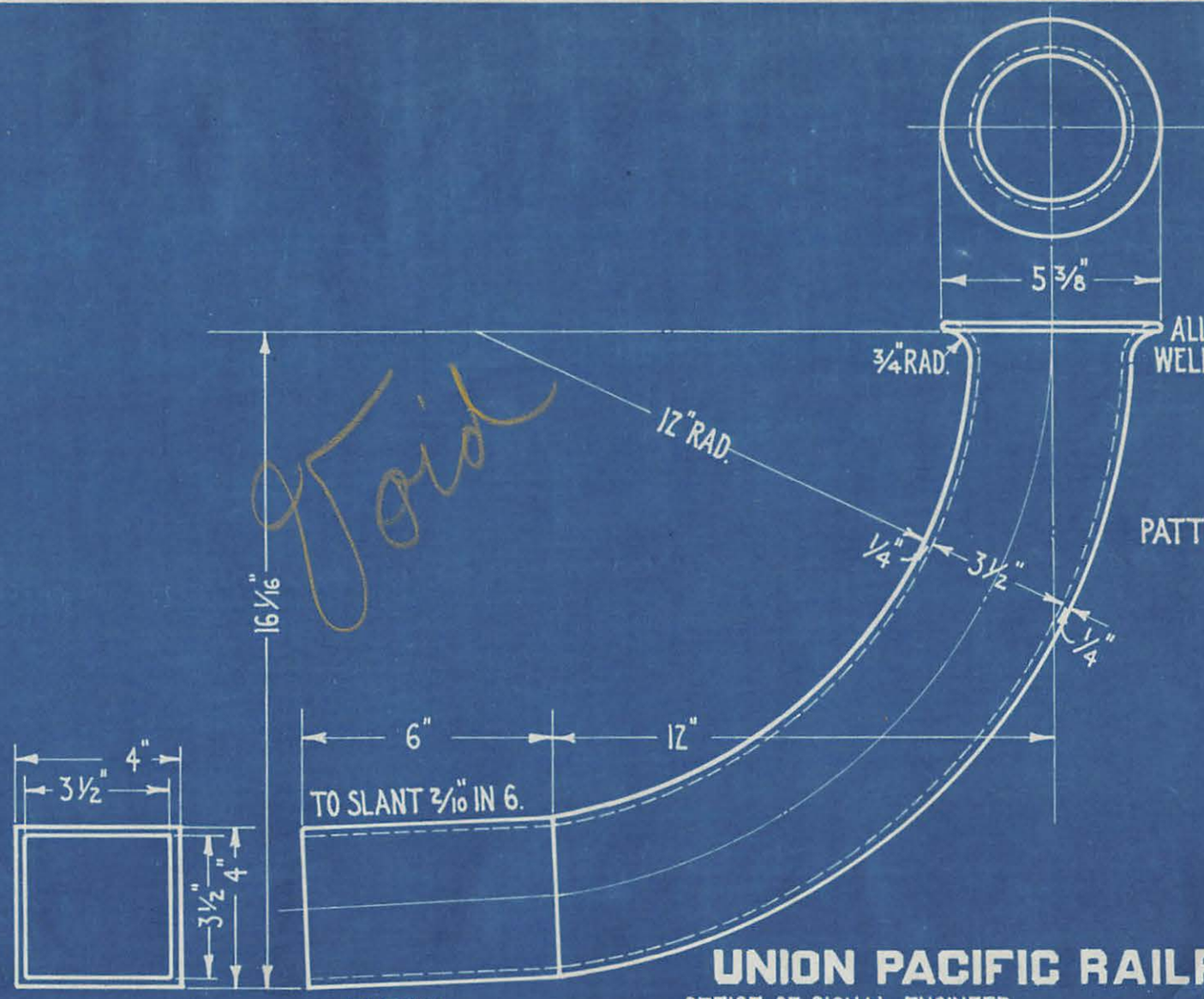
## STANDARD BATTERY CHUTE ELEVATOR

SCALE: AS NOTED. — APRIL 1, 1919.

DRAWN BY R.A.O. — CHECKED BY R.A.F. — APPROVED F. W. Pfleging

REVISED MARCH 24, 1919. A-459

ANCHOR BOLT
SCALE 2" = 1 FT.




ELBOW
SCALE 3" = 1 FT.

PATTERN Nº L-806.

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

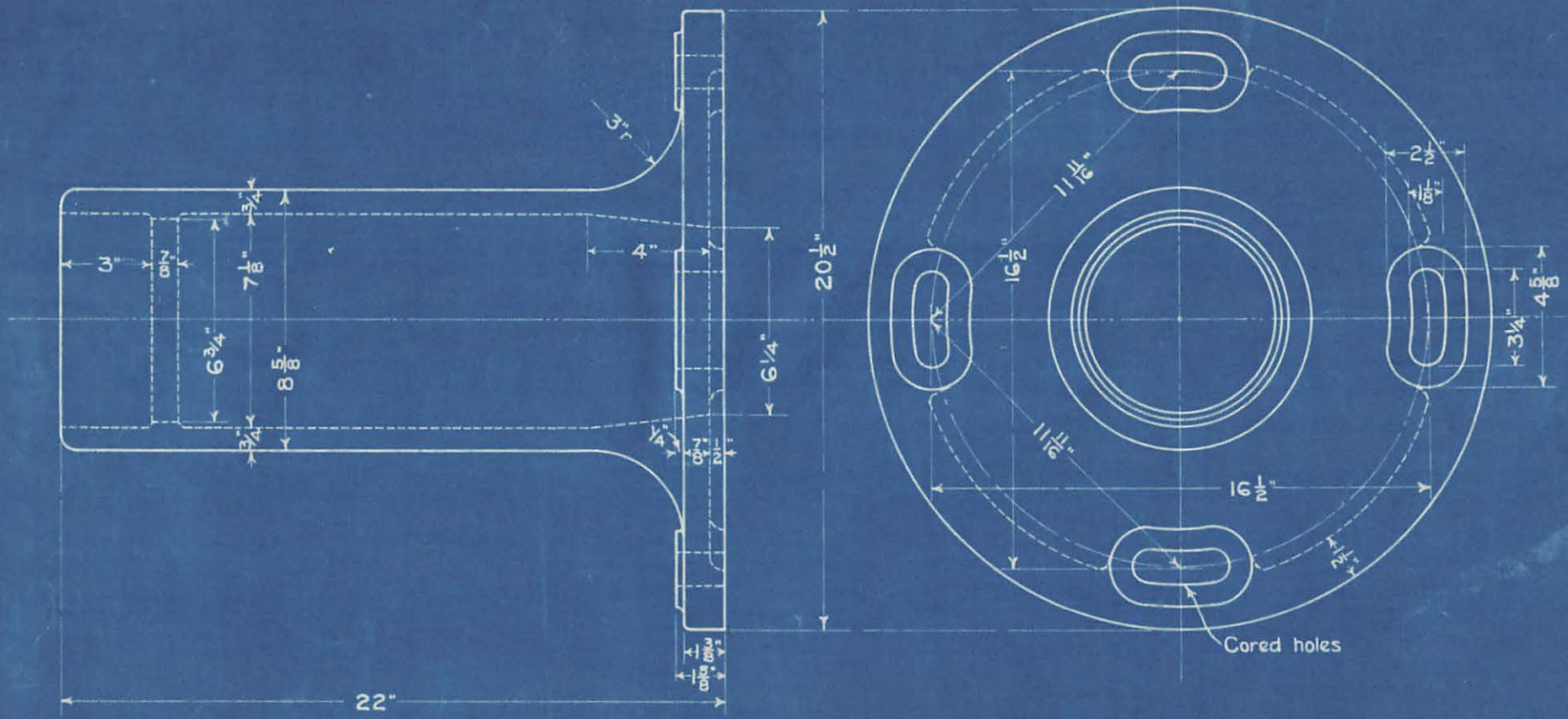
## STANDARD

## ANCHOR BOLT AND ELBOW FOR SIGNAL FOUNDATION.

SCALE AS NOTED — MARCH 23 1919

DRAWN BY R.A.E. CHECKED BY R.A.E. APPROVED F.H.P.

A-461




UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

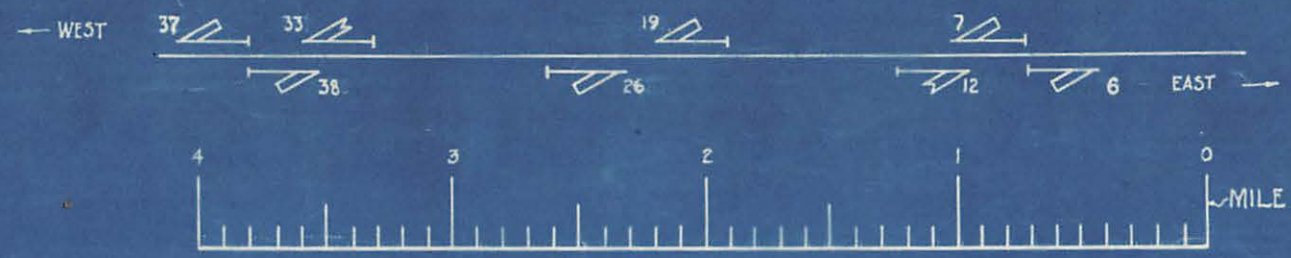
Drawn by C.A.A.
Checked by L.D.D.
Approved F.H.P.
Feb. 28, 1910.

STANDARD
BASE FOR MECHANICAL GROUND SIGNAL.

Revised :-

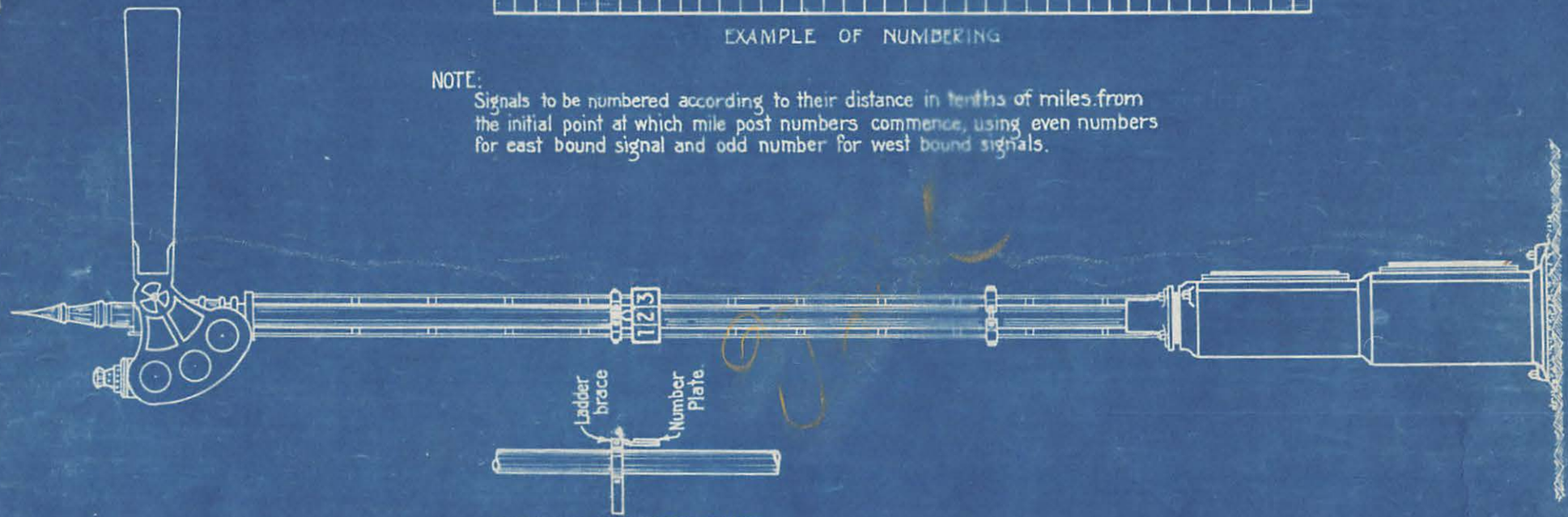
Scale 3/16" = 1 inch

A-464




EXAMPLE OF NUMBERING

NOTE:
Signals to be numbered according to their distance in tenths of miles from the initial point at which mile post numbers commence, using even numbers for east bound signal and odd number for west bound signals.




LOCATION OF NUMBER PLATE

PAINTING

MECHANISM AND BATTERY CASE LADDER AND CASTINGS C.S.7 BLACK VARNISH PAINT.
POLE C.S. 12 WHITE PAINT.

FOR DETAIL AND PAINTING OF NUMBER PLATE SEE DRAWING C.S. 247

FOR DETAIL AND PAINTING OF BLADE SEE DRAWING C.S. 294

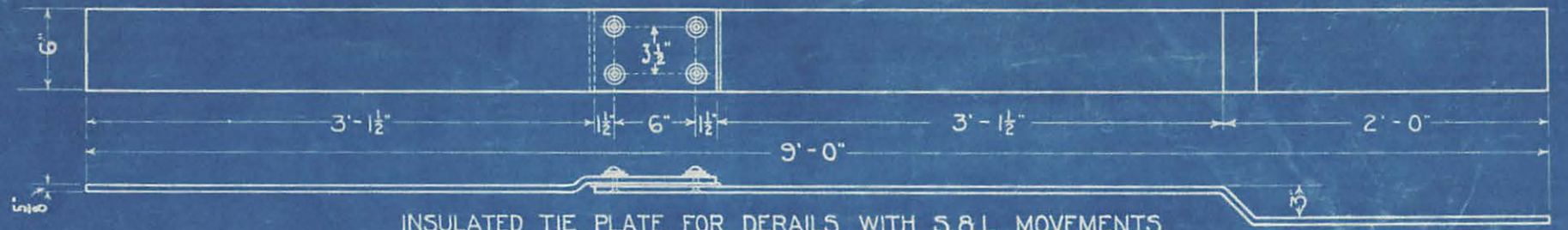
Revised Oct. 28, 1919.
Revised Dec. 1, 1919.
REVISED JAN. 26, 1920.
REVISED SEPT 8 1920
REVISED SEPT 24-20.

Drawn by K.A.E. - F.R.W.
Checked by [illegible]
Approved F.S.P.
August 6, 1918.

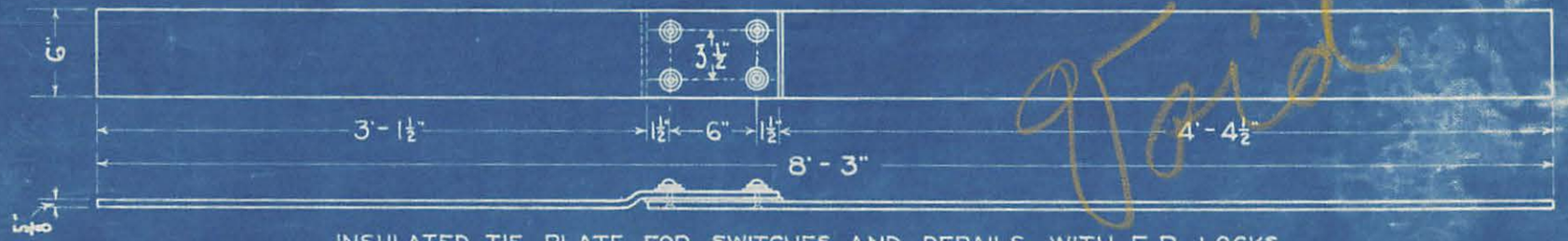
UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer.

STANDARD
METHOD OF NUMBERING AND PAINTING SIGNALS
Revised.
Scale 1" = 1'

A-465

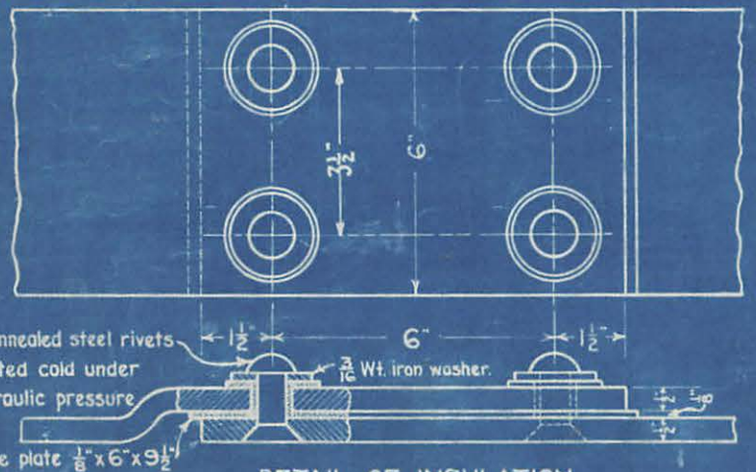



INSULATED TIE PLATE FOR DERAILS WITH S.& L. MOVEMENTS.
Scale 1"=1ft.

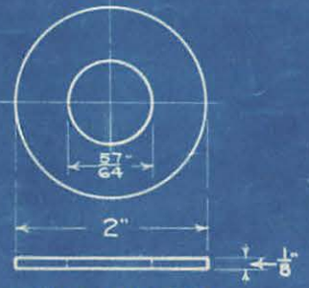



INSULATED TIE PLATE FOR SWITCHES AND DERAILS WITH F. P. LOCKS.
Scale 1"=1ft.

Voided




DETAIL OF INSULATION.
Scale 3"=1ft.




FIBRE WASHER.
Scale half size. 4 required.

FIBRE BUSHING.
Scale half size. 4 required.

Note :-
All bars to be tested for insulation before shipment.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

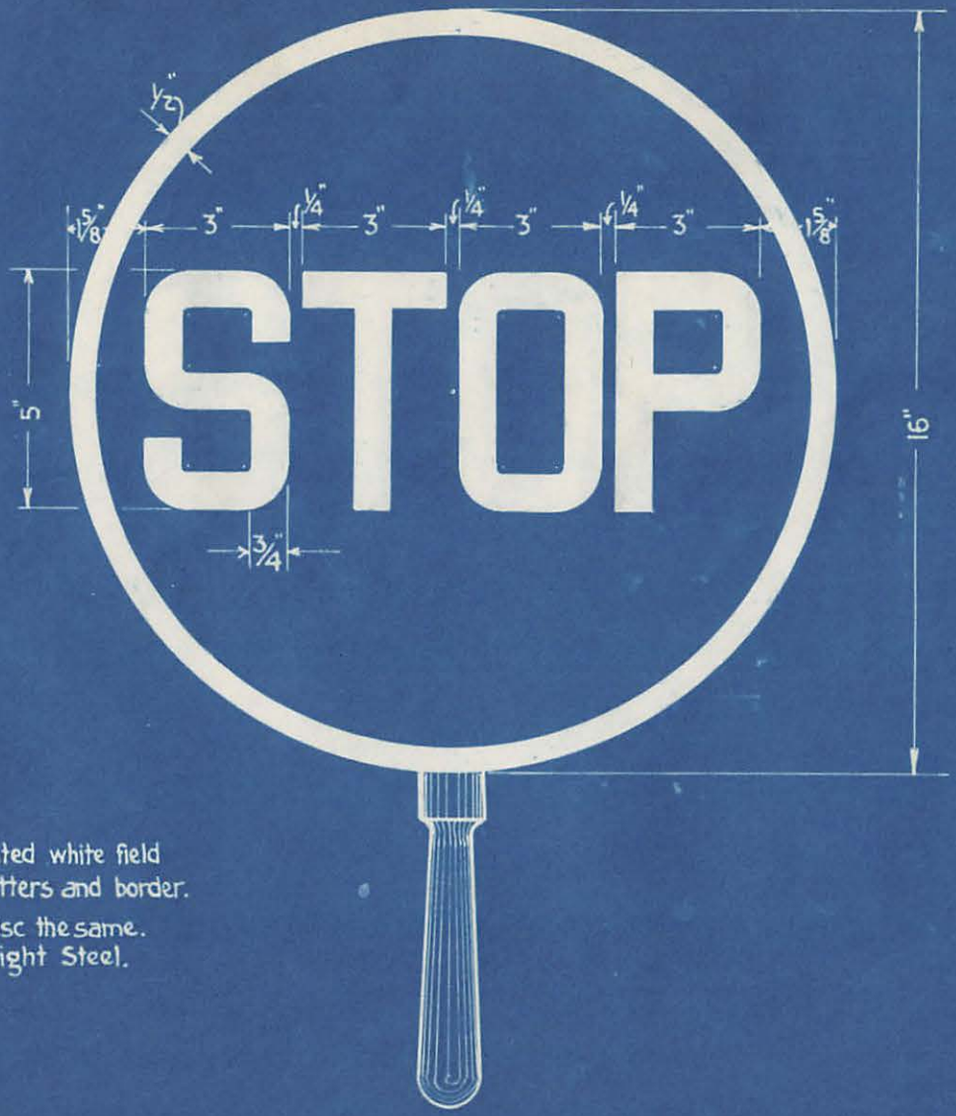
Drawn by C.A.A.
Checked by
Approved
April 23, 1910.

STANDARD
METHOD OF INSULATING TIE PLATES.

Revised :- Aug. 6, 1919.

Scale as noted.

A-467



Note:-

Disc to be painted white field with black letters and border.

Both side of disc the same.

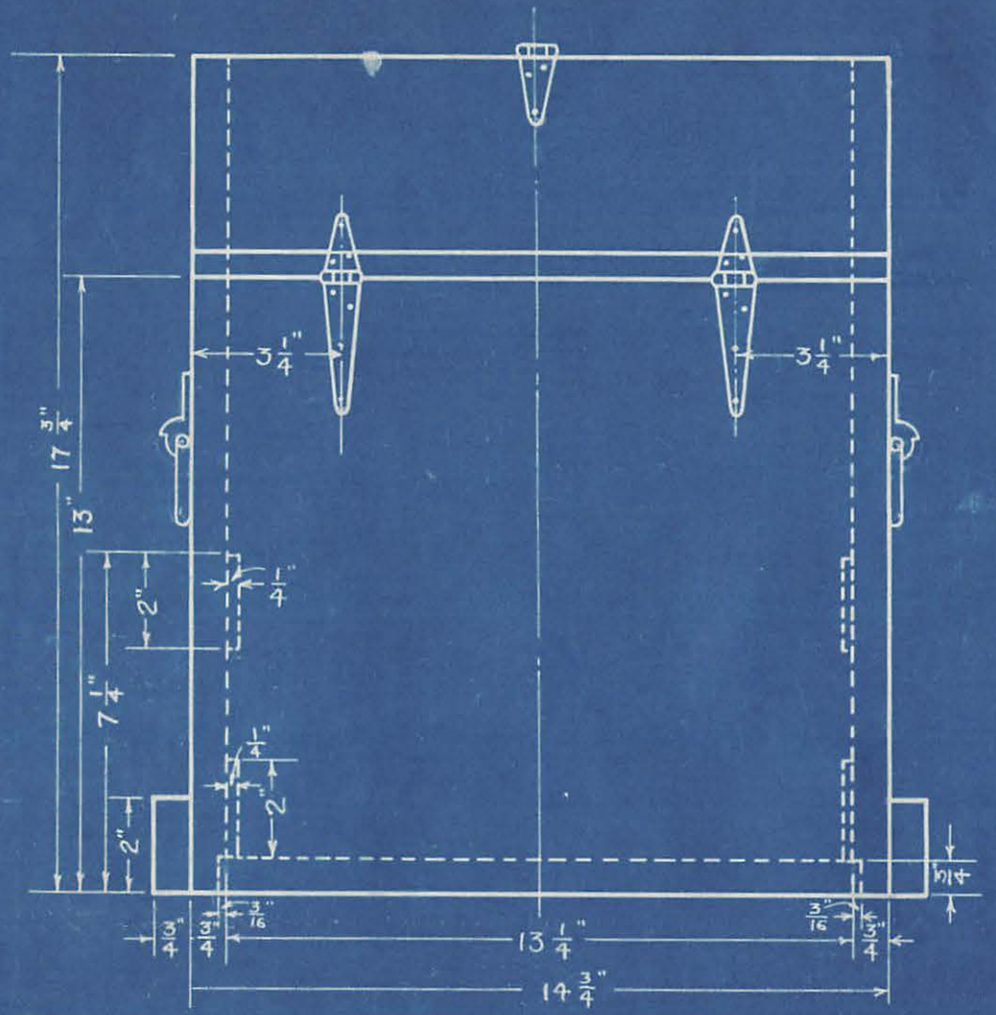
Material:- Light Steel.

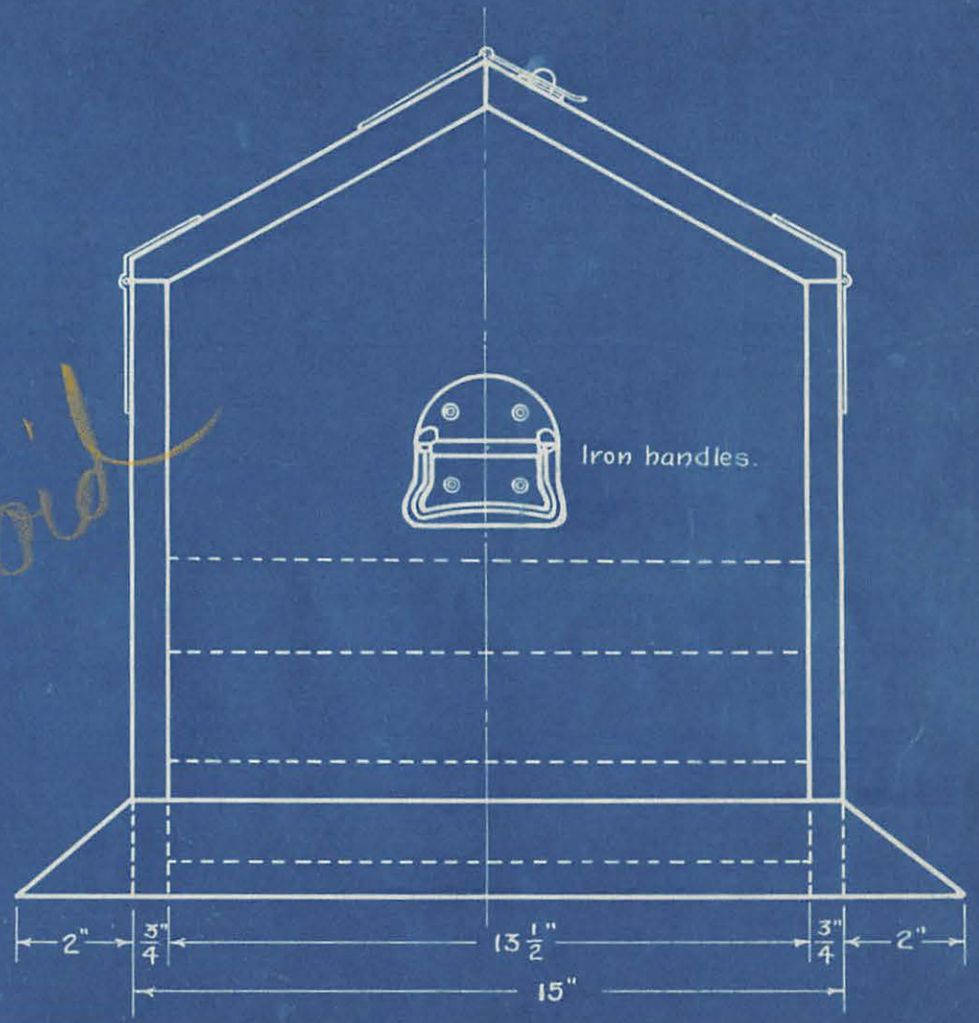
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by E.W.A.
Checked by R.Q.F.
Approved E.W.C. Keasing
Aug. 6 1911.

CROSSING WATCHMAN STOP SIGN.
Scale 3" = 1 Ft.

A-474




Void

Use wood screws to assemble.
3" Strap hinges and hasp.

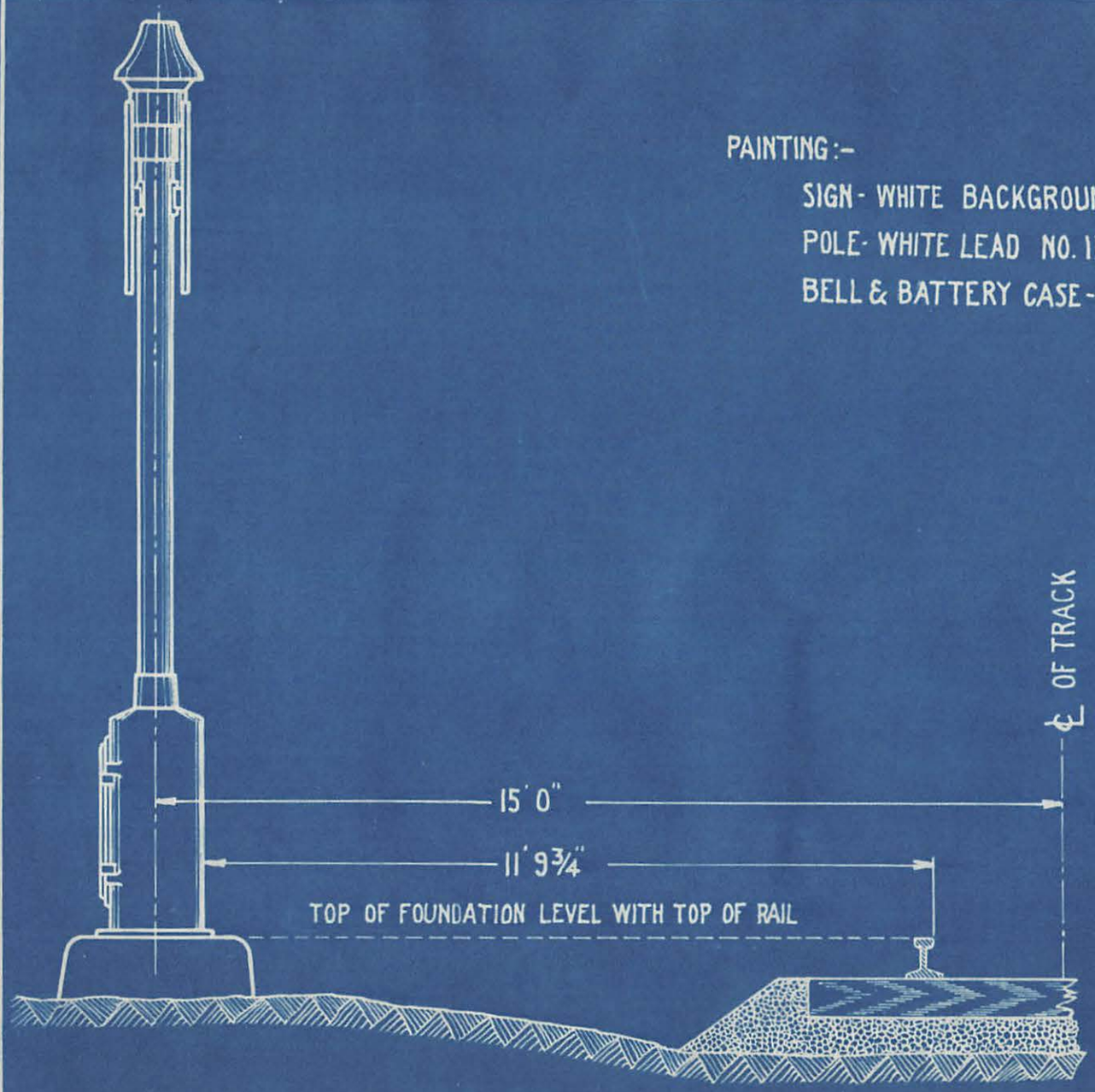
Material:- 3/4" finished white pine.
Painting:- Outside, C.S. 206 Yellow.
Inside, one coat of P. & B.

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

Drawn by I.T.K.
Checked by R.O.F.
Approved F.W. Oleary
9/10/1917.

SHIPPING CASE
For
TWO 4 CELL BATTERY CASES
Scale 1" = 1 inch.

| | | | | REVISED OCT. 14, '19 | A-477 |
|---|---|---|---|---|---|




PAINTING:-

SIGN - WHITE BACKGROUND WITH BLACK LETTERS

POLE - WHITE LEAD NO. 12

BELL & BATTERY CASE - BLACK C.S.13

**UNION PACIFIC RAILROAD.**

OFFICE OF SIGNAL ENGINEER OMAHA, NEBR.

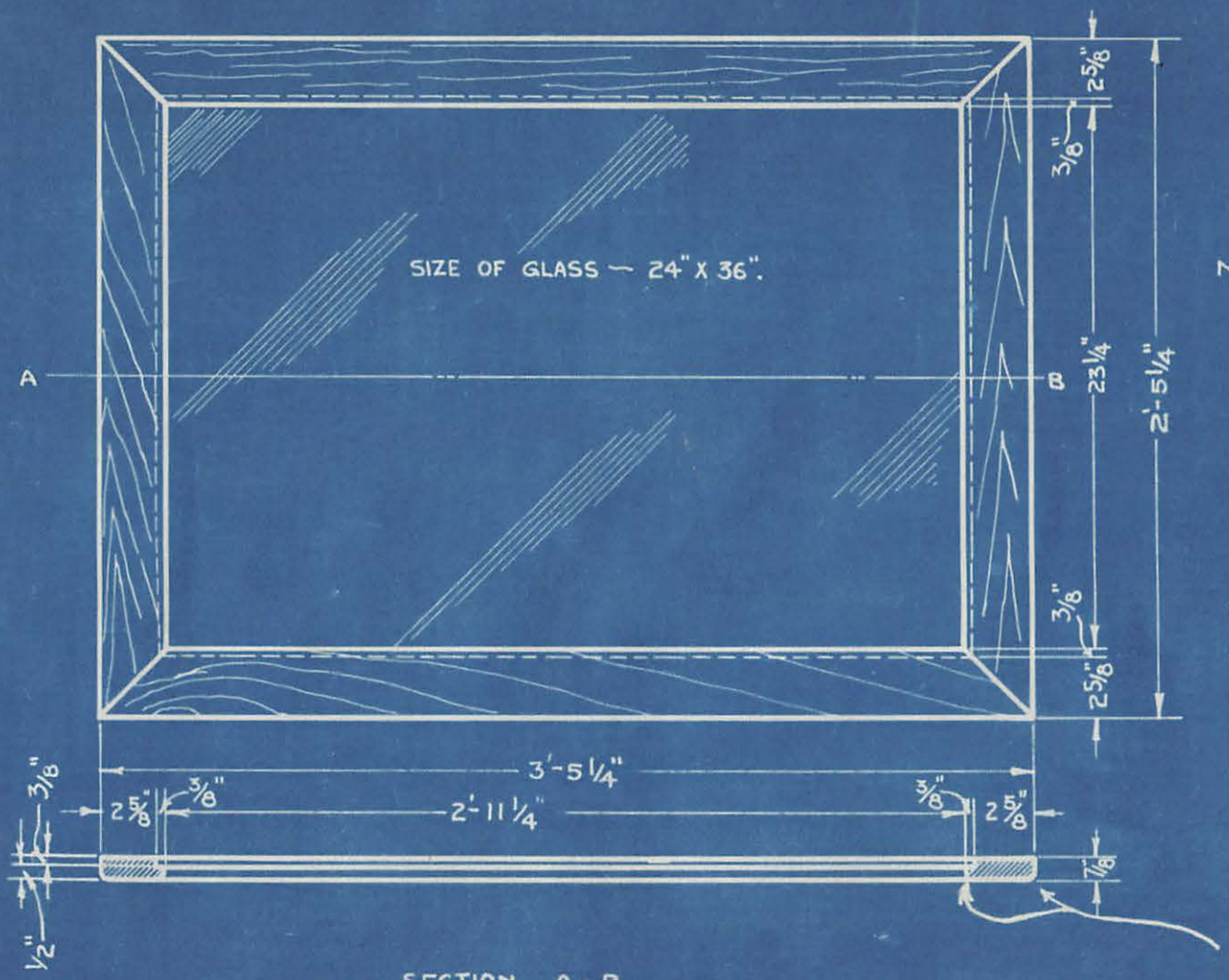
STANDARD

LOCATION OF CROSSING BELL

SCALE 3/8" = 1 Ft. OCT. 14, 1919.

DRAWN BY E.W. CHECKED BY R.A.F. APPROVED E.W. Pfleging

A-486




SECTION A-B

NOTE:

Frame to be of well-seasoned oak.

Back of Frame to be 3/16" soft Poplar.

Corners to be slightly rounded.

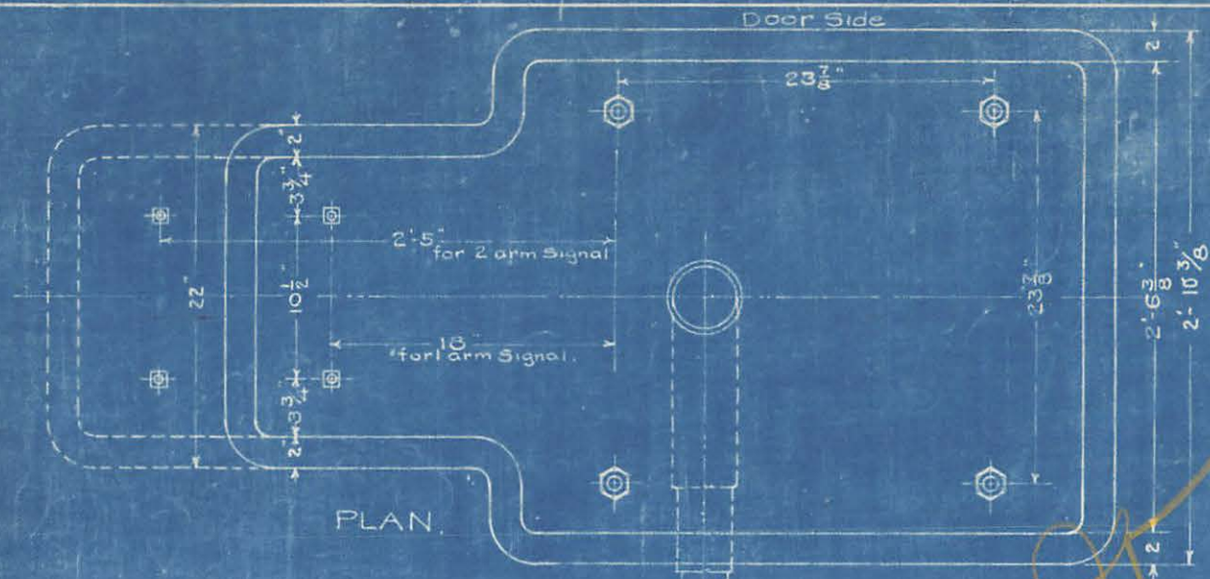
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by W.C.B.
Checked by R.A.F.
Approved F.W. Brabeck
Jan. 20, 1917.

FRAME
FOR MANIPULATION CHART.
Scale 1 1/2" = 1 Ft.

A-492

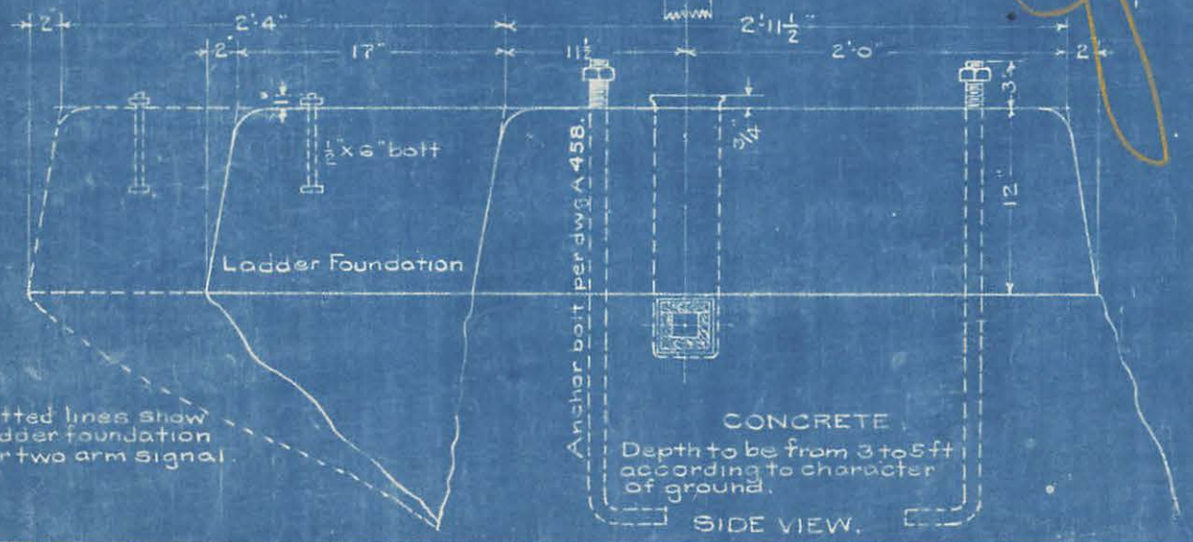
Supersedes drawing S.E. 8032.

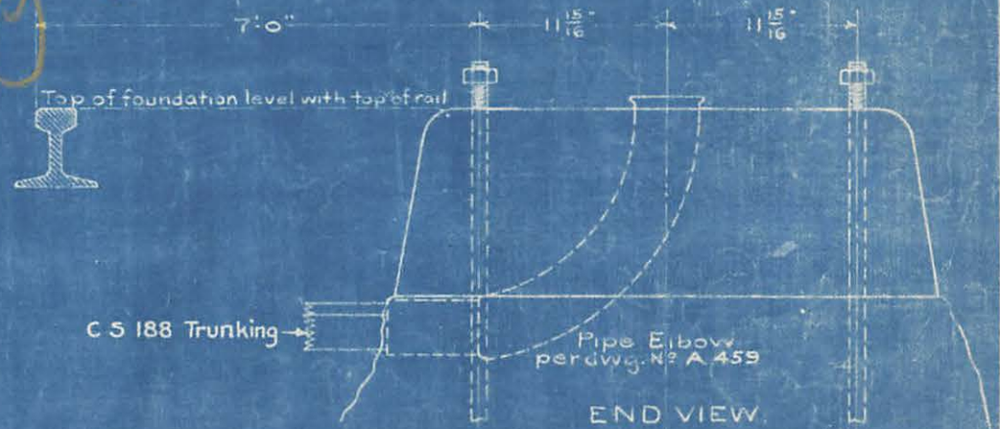



Note:-
For pipe elbow and anchor bolts See drawing A-459 and A 458
For Iron form for 1 arm Signal see drawing C-682.
On new fills and other places where concrete foundations would be liable to settle, the timber foundation shown on drawing A.407 Should be used.

Concrete Specifications:-
Concrete in each foundation 7 sack cement.
1 yard sand.
2 yard stone.

Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and whitewashed with neat cement.




UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

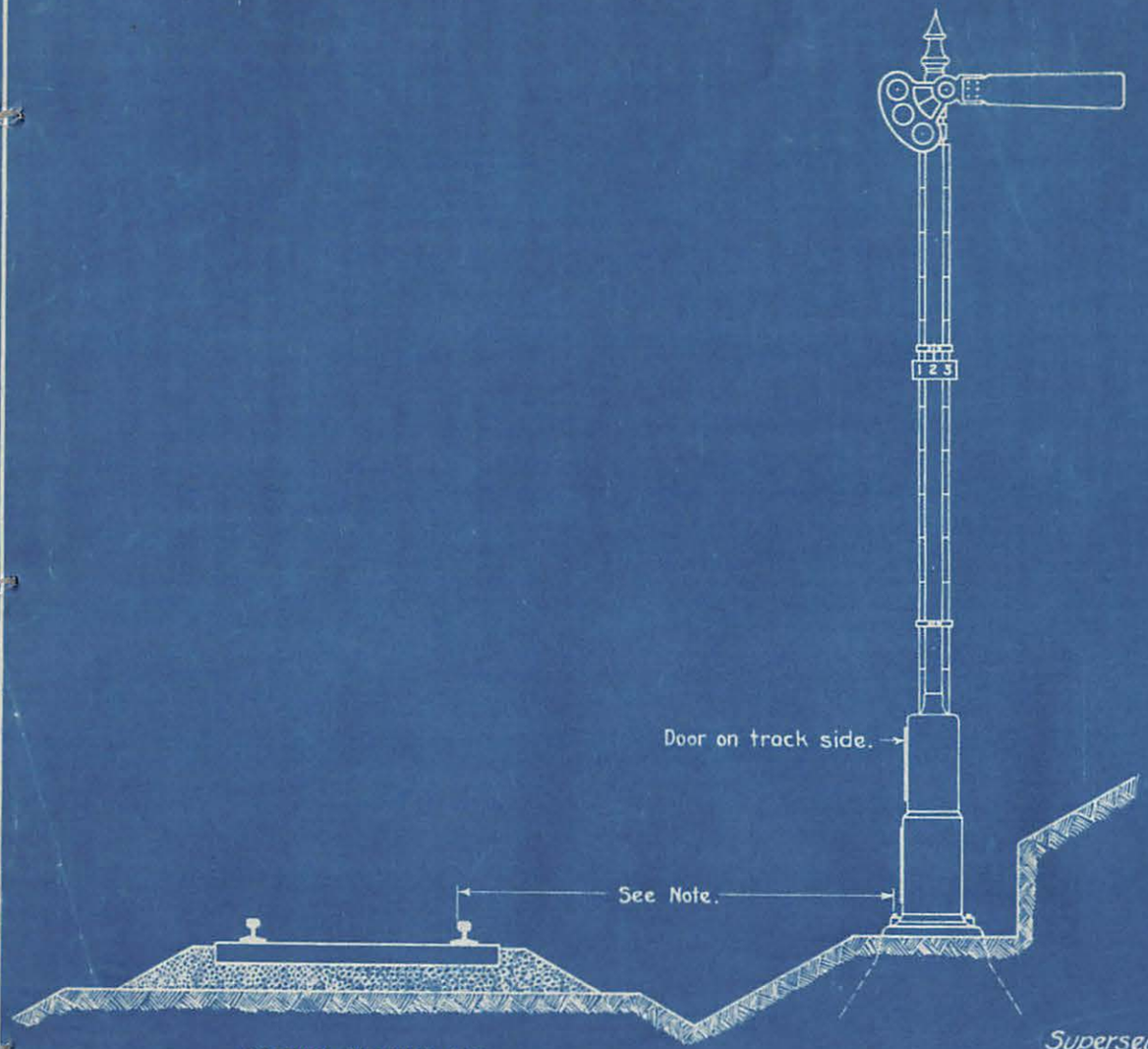
L.D.D.
GEM.
Aug 26, 1910.

STANDARD

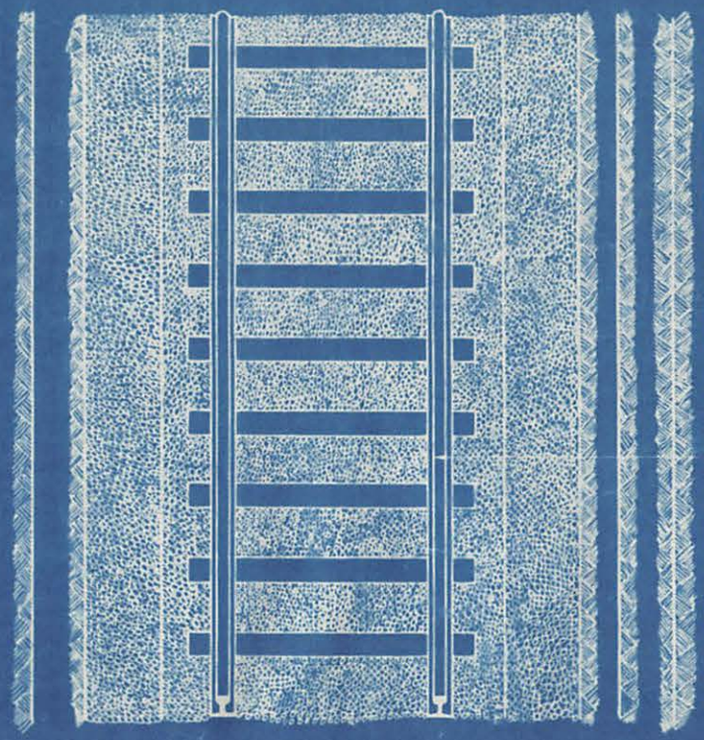
CONCRETE FOUNDATION FOR DOUBLE CASE UNION STYLE "B" ELECTRIC SEMAPHORE.

Scale 1" = 1 ft.

A-496




SECTION THROUGH CUT.



NOTE.
This distance to be detemined by local conditions but foundation must clear ditch.

*Supersedes A 297*

Drawn by R.A.F.
Checked by L.D.S.
Approved J.C. Young
Aug 30, 1910.

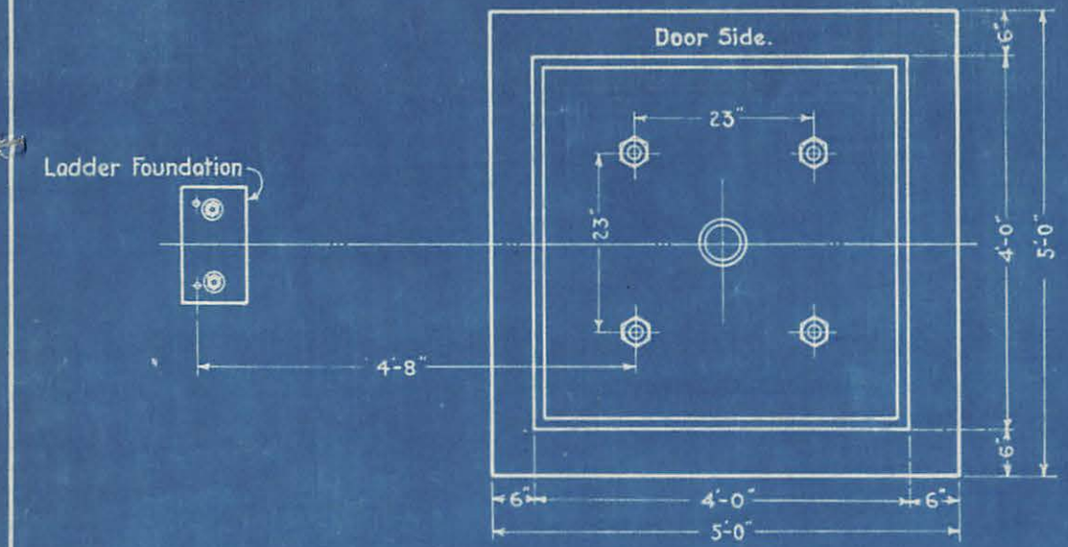
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer

SIGNAL FOUNDATION
LOCATION OF SIGNAL FOUNDATION IN CUT.

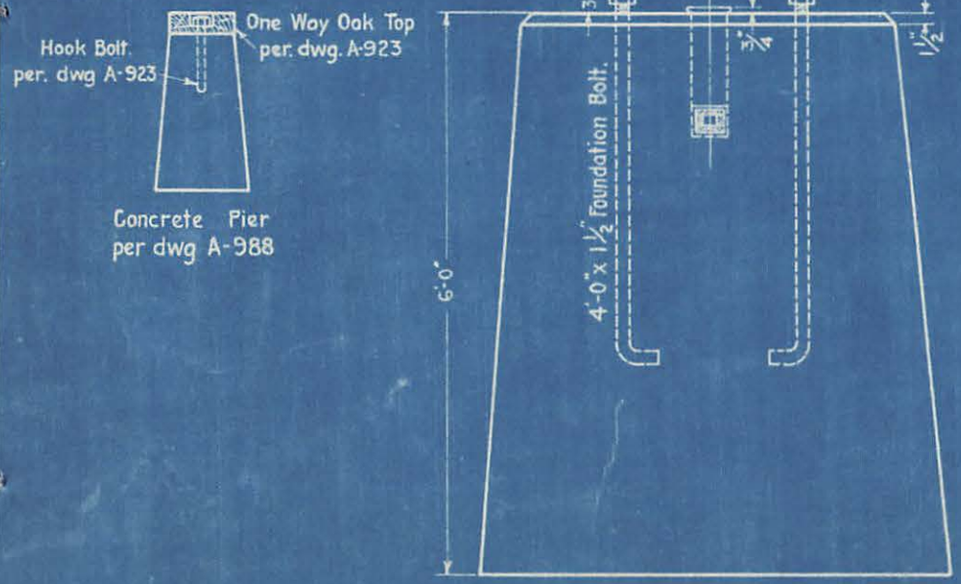
Revised :-

Scale 3/16" = 1 ft.

A-497



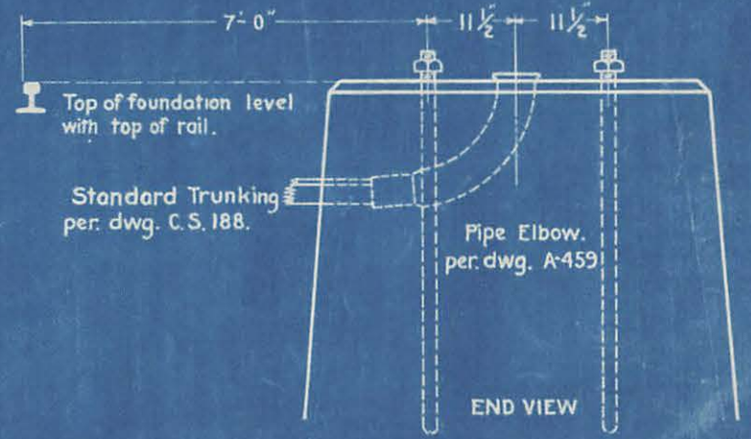

PLAN.




SIDE VIEW.

Concrete to be mixed in following proportion
7 sacks cement to 1 yard of sand and 2 yard crushed rock.

Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and white washed with neat cement.




END VIEW

*Supersededs A 248*

Drawn by R.A.F.
Checked by L.D.D.
Approved J. Cayong
Sept. 1. 1910.

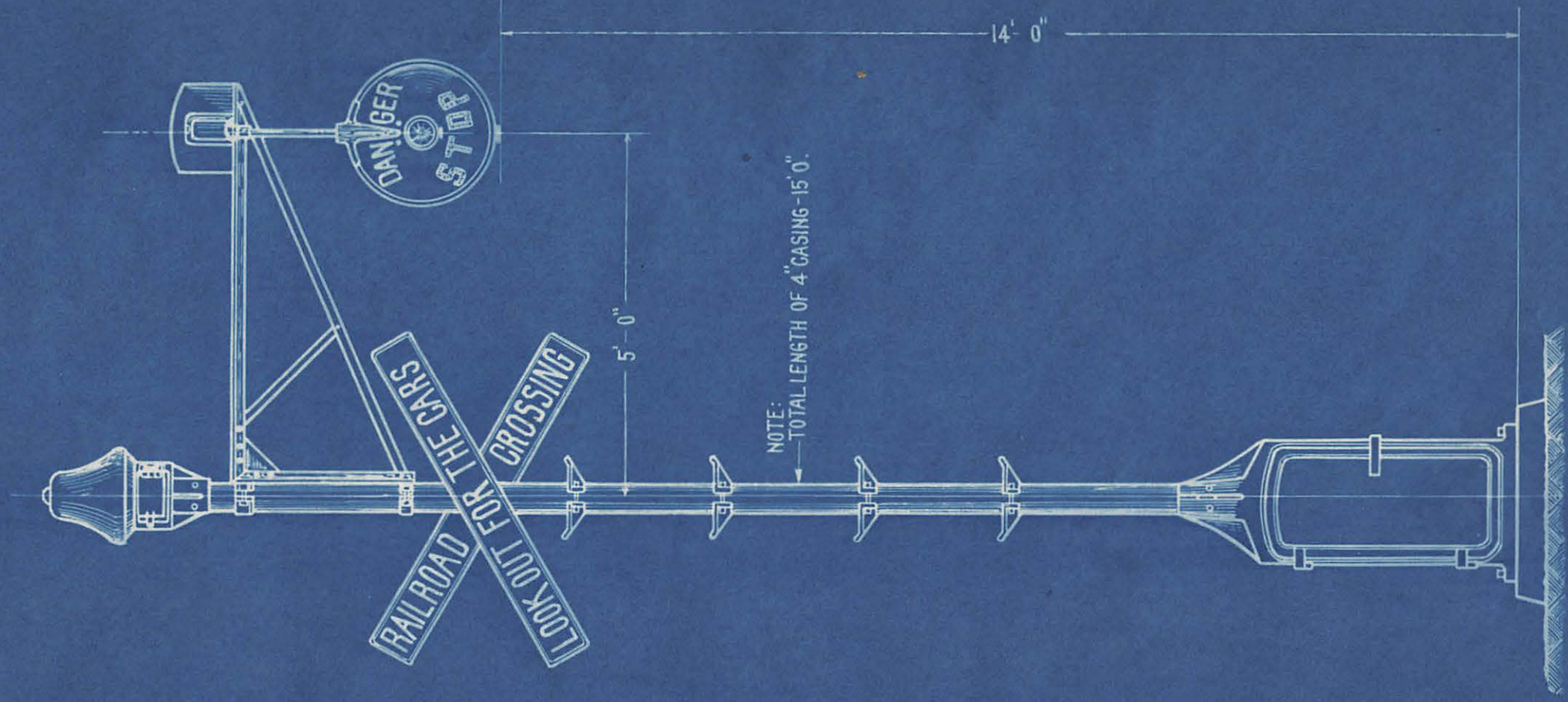
UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer.

FOUNDATION
STANDARD FOUNDATION FOR PIPE BRACKET POST WITH STEEL BASE.

Revised.

Scale ½"=1 ft.

A-499




# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

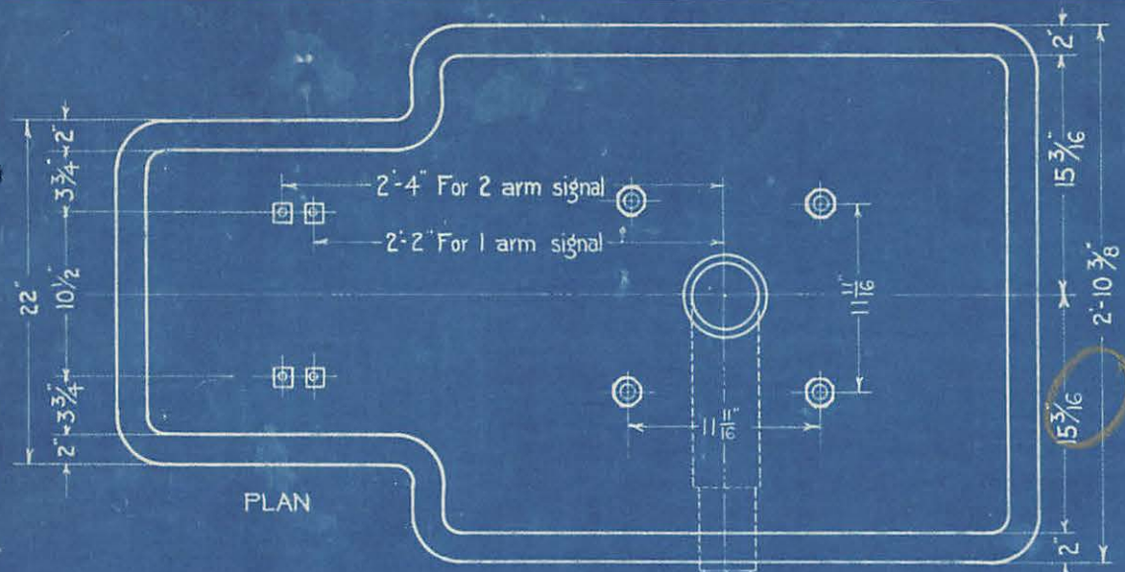
STANDARD

WIG WAG HIGHWAY CROSSING SIGNAL

SCALE-½"=1' — OCT. 12, 1920.

DRAWN BY TMB CHECKED BY APPROVED

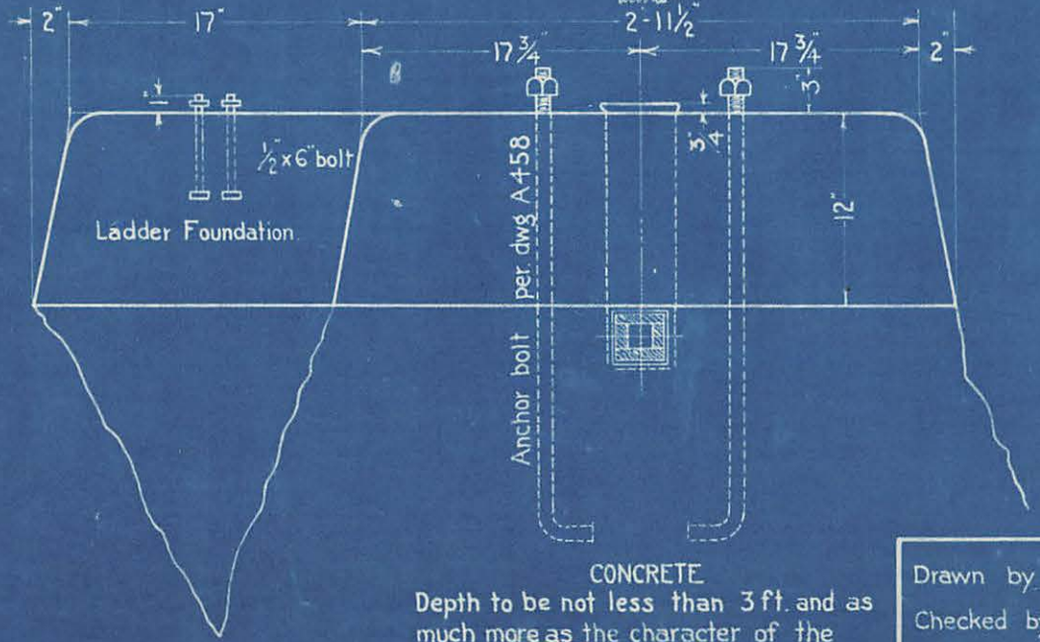
A 500




NOTE:-
For pipe elbow see drawing A-459
For anchor bolt see drawing A-458
For iron form for signal foundation see drawing C-682
On new fills and other places where concrete foundation would be liable to settle the timber foundation shown on drawing A-407 should be used.

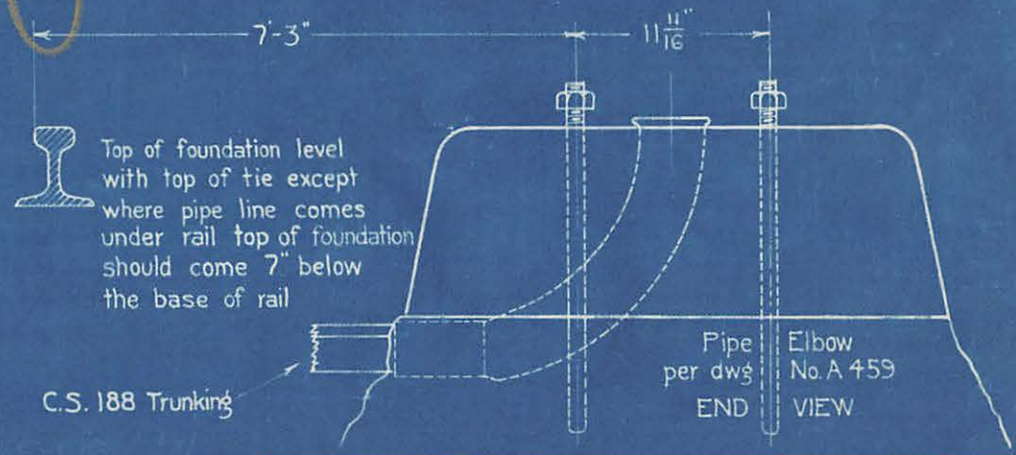
Concrete Specifications
Concrete in each foundation 7 sacks cement.
1 Yard sand.
2 Yard stone.

Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and white washed with neat cement.




CONCRETE
Depth to be not less than 3 ft. and as much more as the character of the ground calls for

SIDE VIEW


7'-3"
11 11/16"
Top of foundation level with top of tie except where pipe line comes under rail top of foundation should come 7" below the base of rail
C.S. 188 Trunking
Pipe per dwg
Elbow No. A 459
END VIEW

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer.

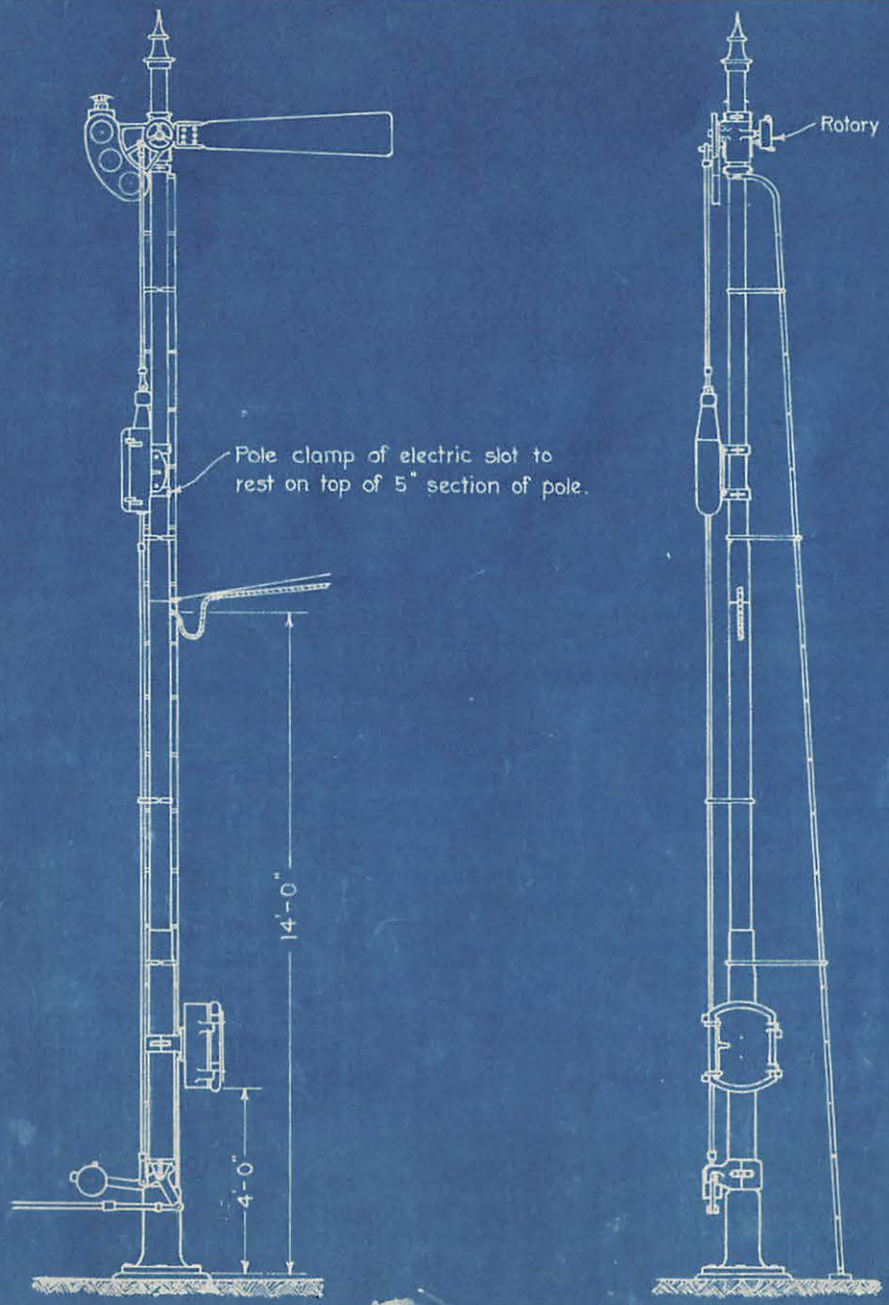
Drawn by W.E.M.
Checked by
Approved
April 14-1911

FOUNDATION
CONCRETE FOUNDATION FOR ONE OR TWO ARM UNION MECHANICAL SIGNAL

Revised

Scale 1" = 1ft

A-501







UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

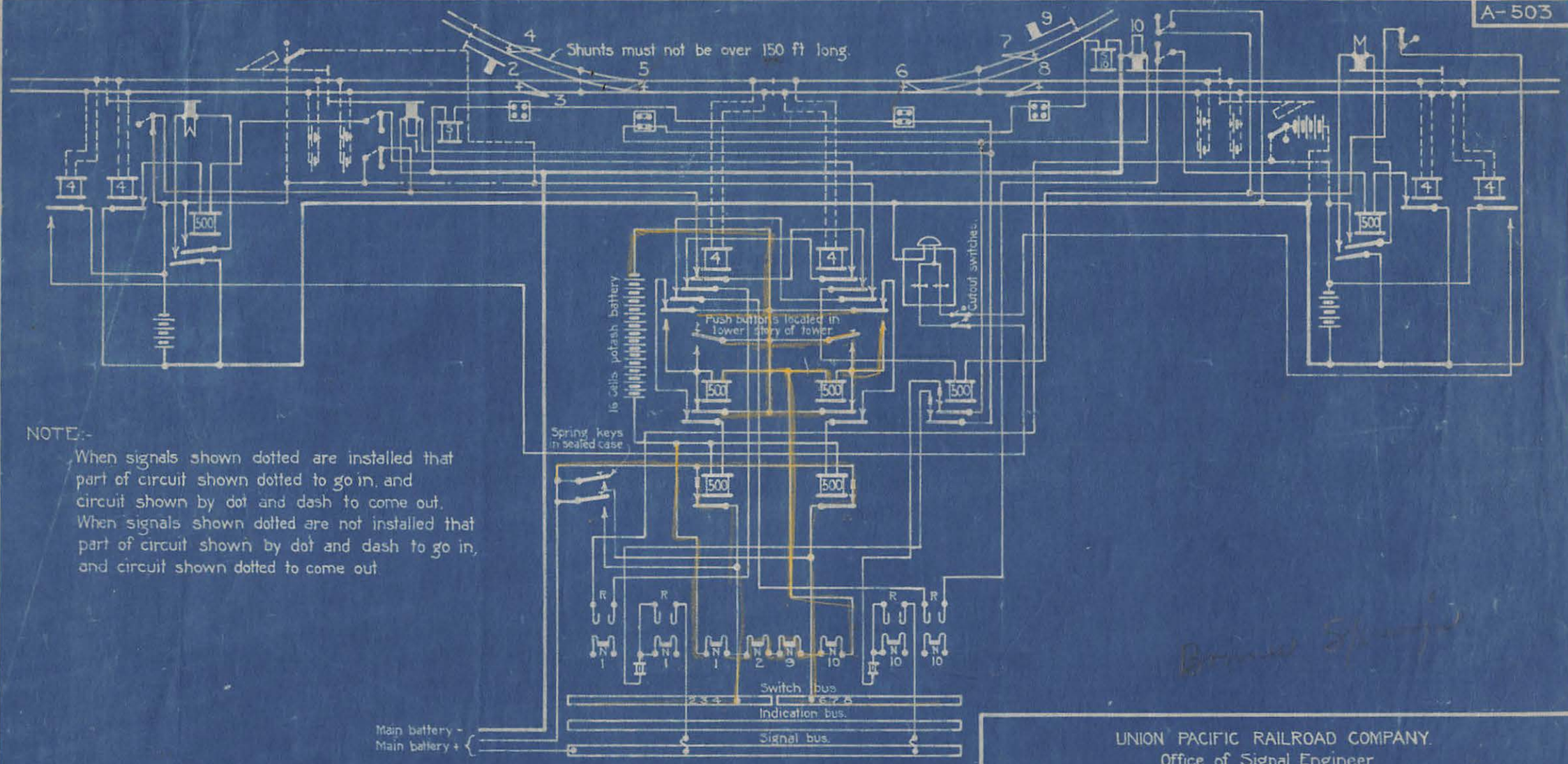
Drawn by R. F.
Checked by L.D.D.
Approved
May 10, 1911.

STANDARD
METHOD OF APPLYING ELECTRIC SLOT, RELAY BOX AND CABLE TO MECHANICAL SIGNAL ON POLE LINE SIDE.

Revised:

Scale 1/4" = 1 ft.

A-503




NOTE:-

When signals shown dotted are installed that part of circuit shown dotted to go in, and circuit shown by dot and dash to come out. When signals shown dotted are not installed that part of circuit shown by dot and dash to go in, and circuit shown dotted to come out.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

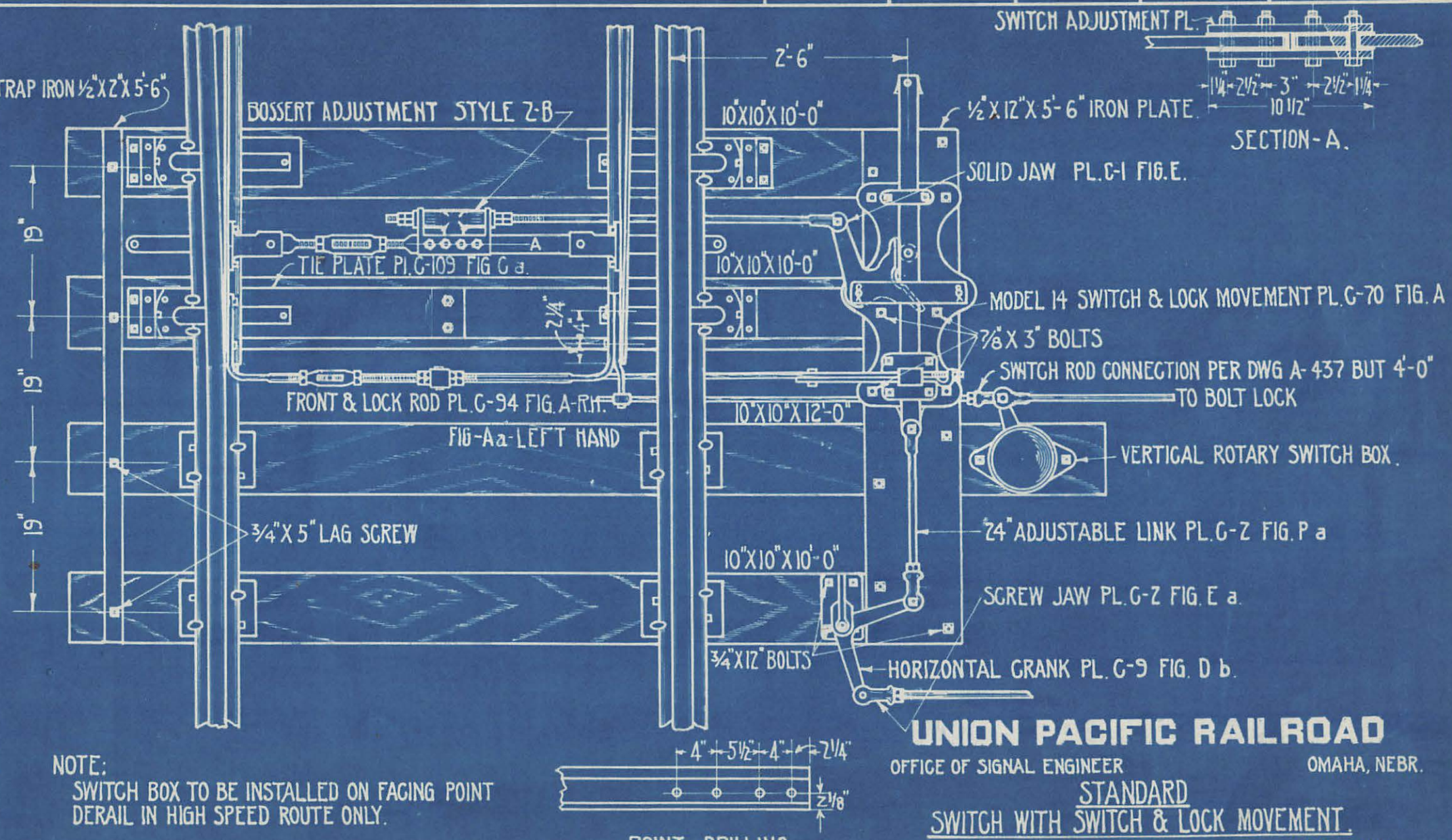
Drawn by R.F.
Checked by E.D.D.
Approved J.C. Young
Jan. 2 1912.

STANDARD
APPROACH AND ROUTE LOCKING AT
ELECTRICAL INTERLOCKING PLANTS.

Revised :-

Not to scale.

A-516




NOTE:
SWITCH BOX TO BE INSTALLED ON FACING POINT
DERAIL IN HIGH SPEED ROUTE ONLY.

POINT DRILLING.
DRILL 13/16" HOLES FOR ¾" BOLTS

**UNION PACIFIC RAILROAD**

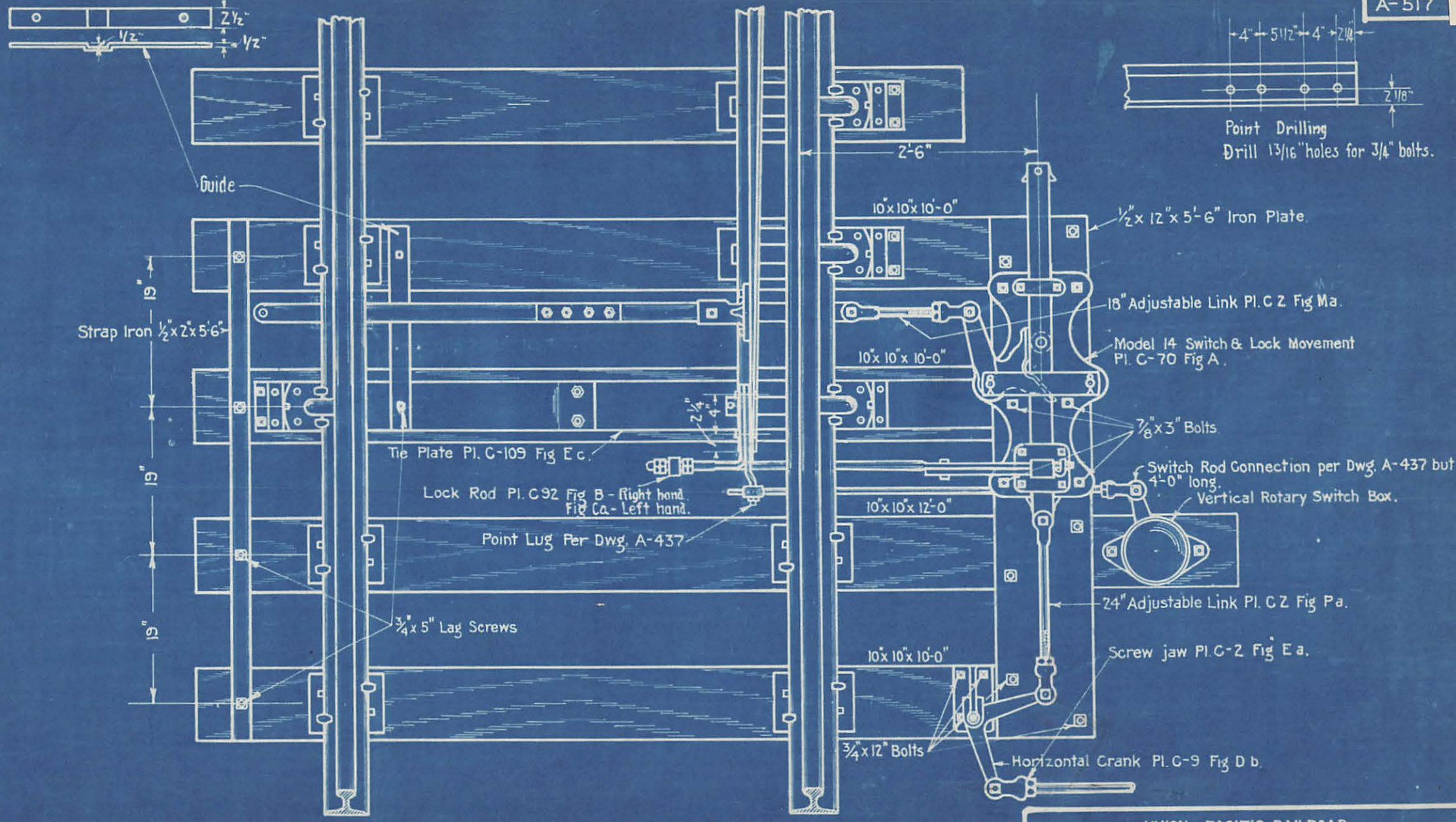
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD
SWITCH WITH SWITCH & LOCK MOVEMENT.

SCALE ¾"=1 FT. — APRIL 2 1919.

DRAWN BY RAF CHECKED BY L.D.D. APPROVED F.W. Pflegung

A-517



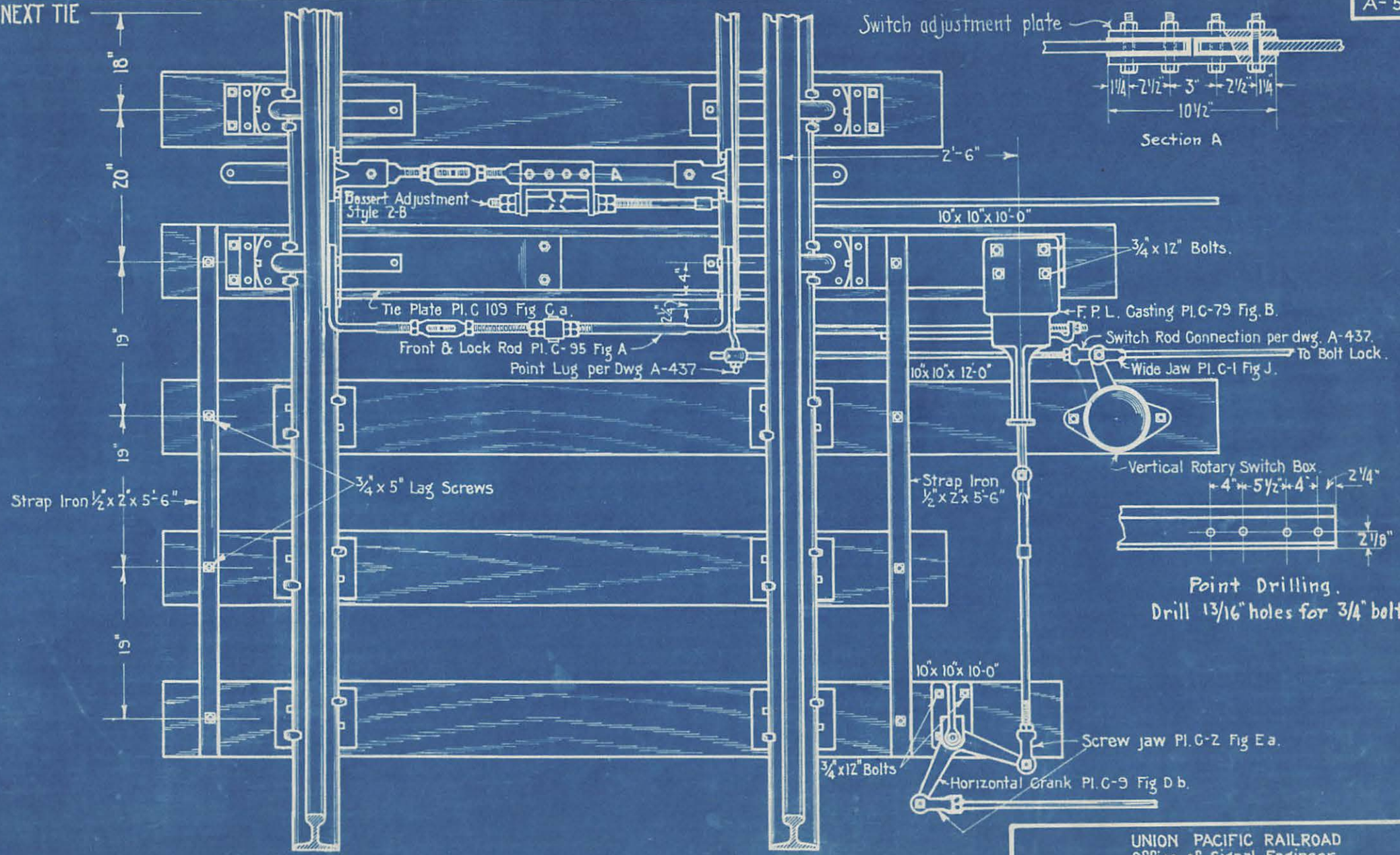

NOTE:
Switch Box to be insalled on facing point derail in high speed route only.

Drawn by R.A.F.
Checked by L.S.D.
Approved F.W. Pfleging
Dec. 5, 1918.

UNION PACIFIC RAILROAD
Office of Signal Engineer.

STANDARD
DERAIL WITH SWITCH & LOCK MOVEMENT.
Scale ¾" = 1 Ft.

A-518



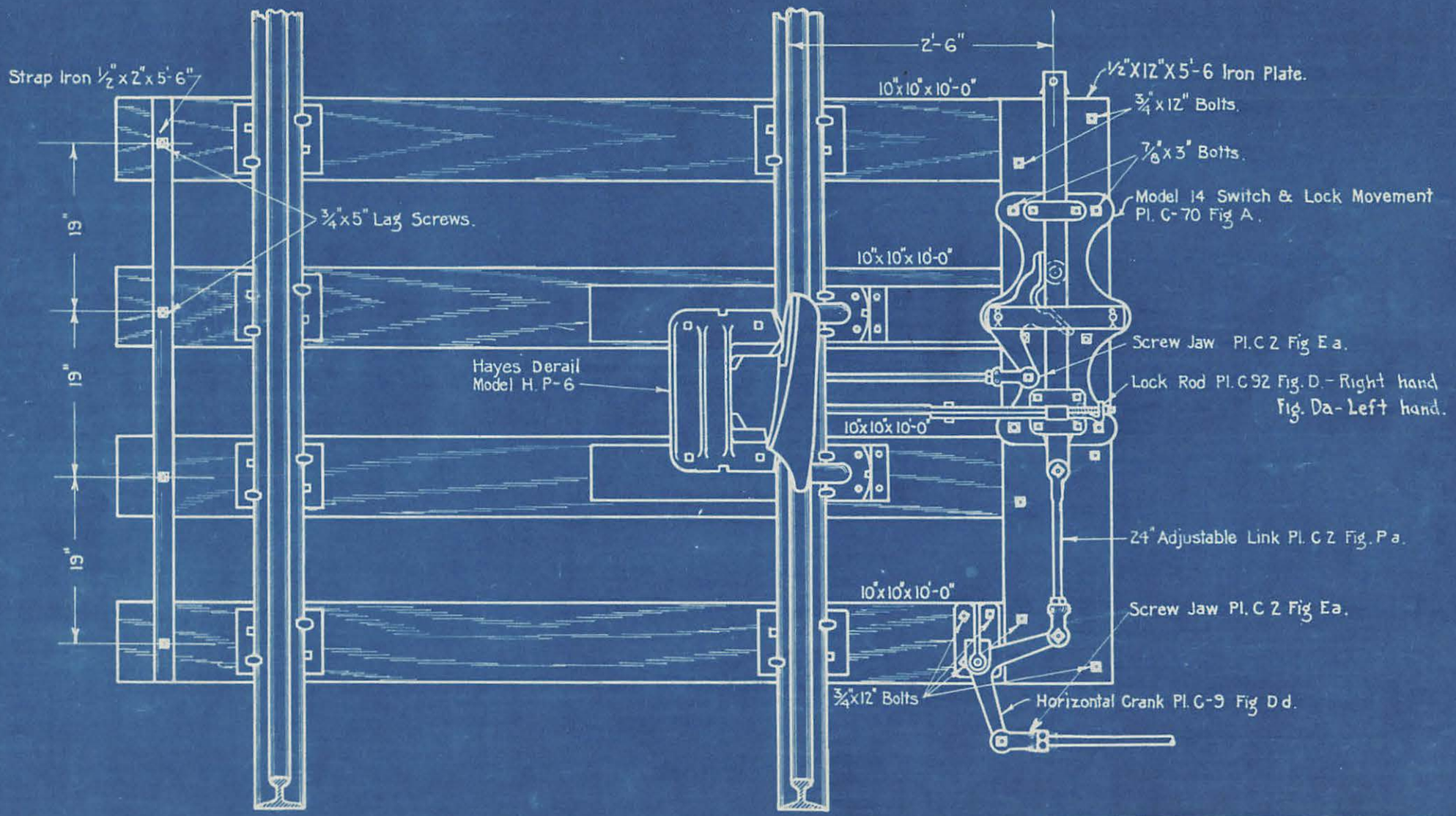

NOTE:
Switch Box to be installed on facing point switch in high speed route only.

Drawn by B.A.F.
Checked by L.D.D.
Approved F.W. Pflueger
Dec. 5, 1918

UNION PACIFIC RAILROAD
Office of Signal Engineer

STANDARD
SWITCH WITH FACING POINT LOCK.
Scale ¾" = 1 Ft.

A-519

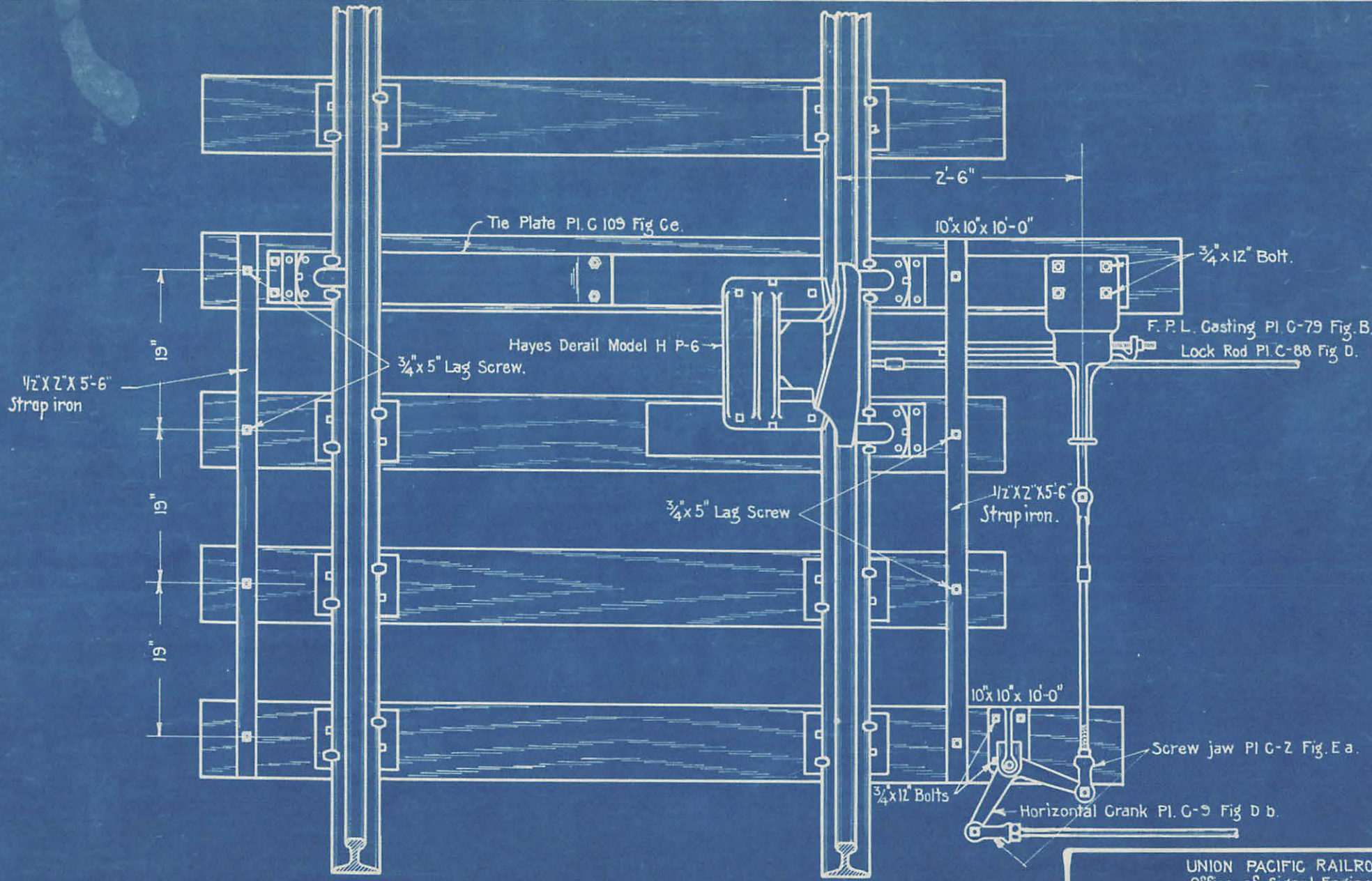



UNION PACIFIC RAILROAD
Office of Signal Engineer.

Drawn by R.A.F.
Checked by E.D.D.
Approved E.W.Pfleging
Dec. 10, 1918

STANDARD
HAYES DERAIL WITH SWITCH & LOCK MOVEMENT
Scale ¾" = 1 Ft.

A-520



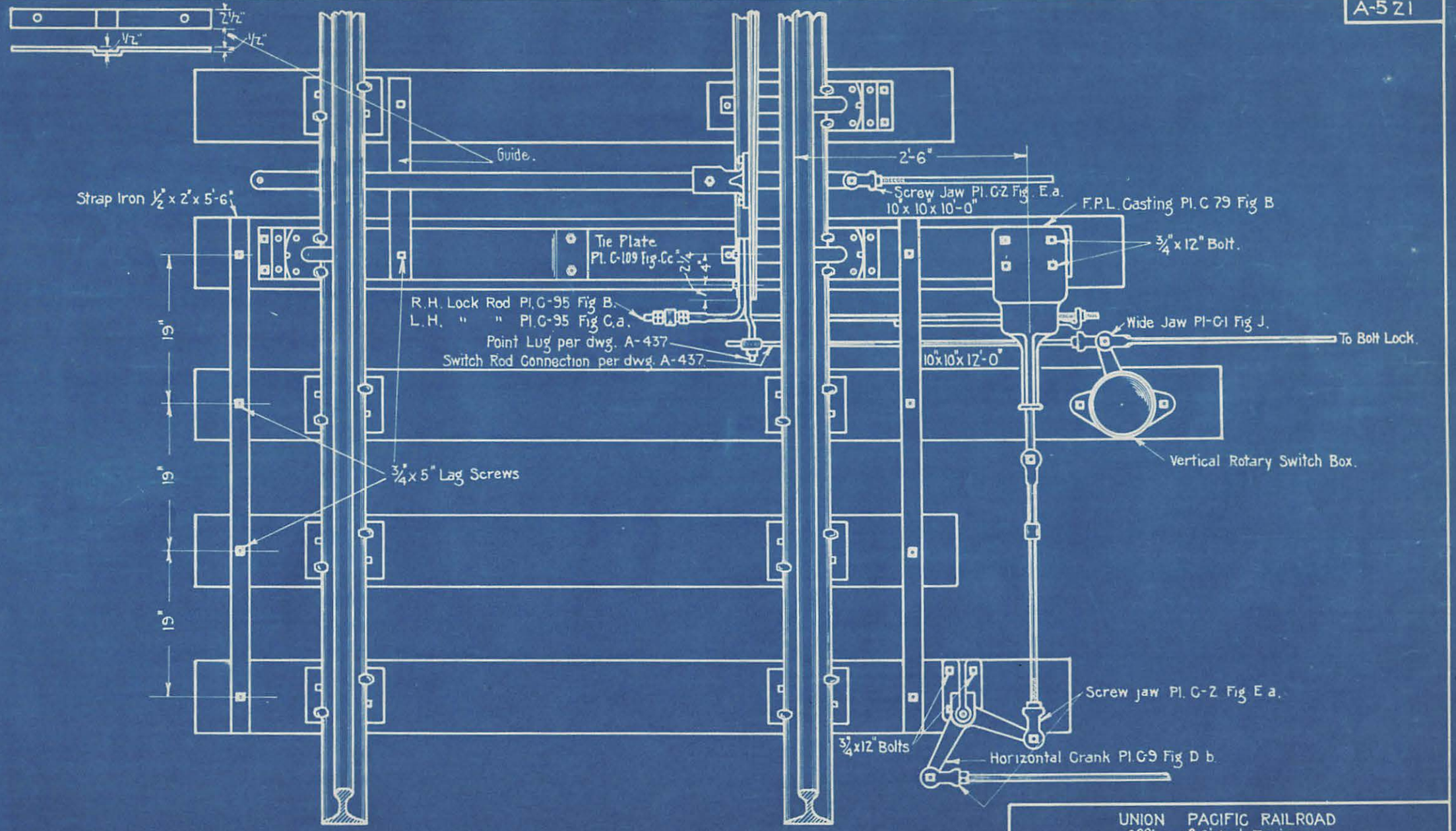

UNION PACIFIC RAILROAD.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by
Approved F.W. Pflegner
Dec. 11, 1918.

STANDARD
HAYES DERAIL WITH FACING POINT LOCK.

Scale ¾ = 1 Ft.

A-521

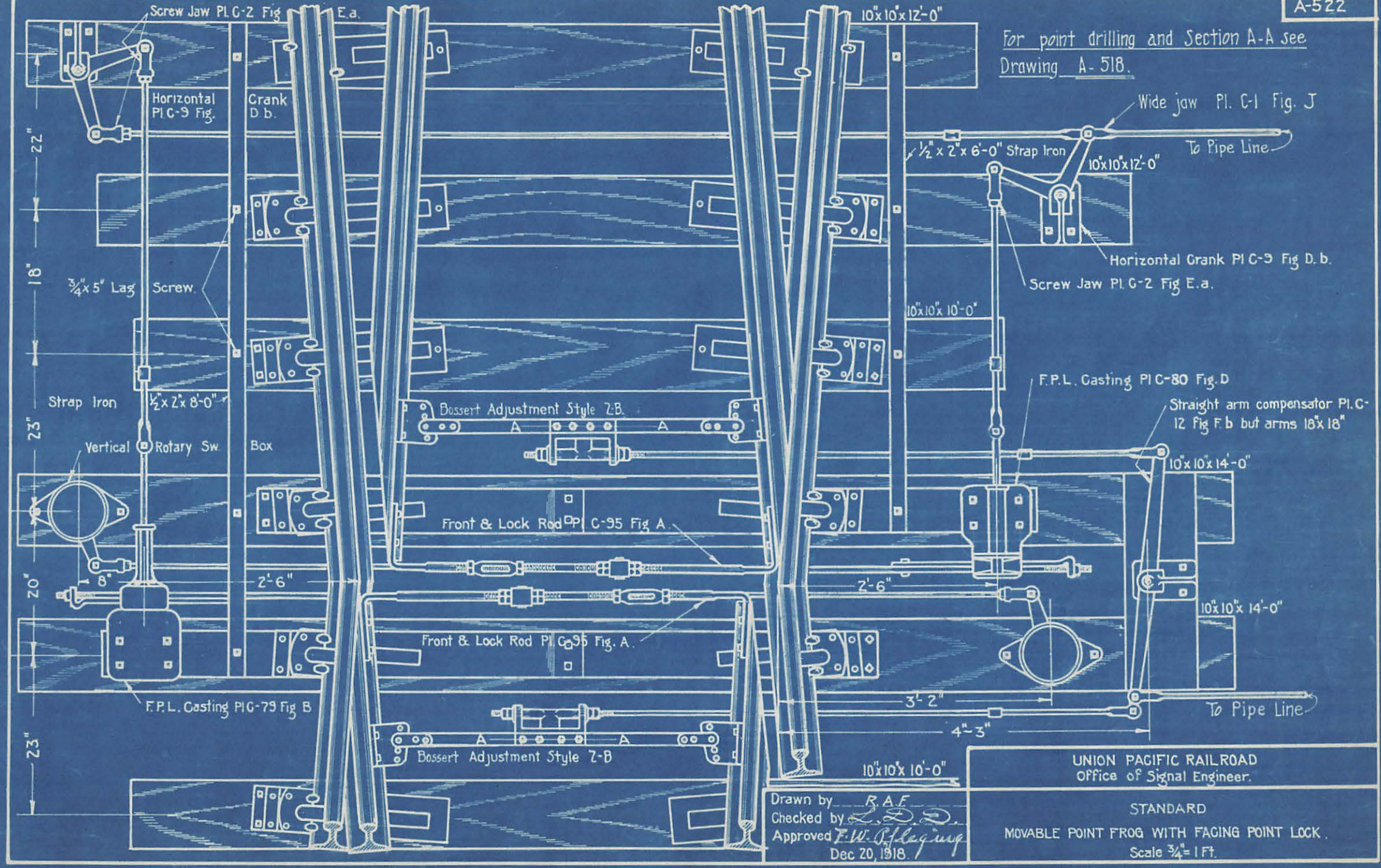



UNION PACIFIC RAILROAD
Office of Signal Engineer.

Drawn by R.A.F.
Checked by
Approved F.W. Flagg
Dec 12/1918.

STANDARD
DERAIL WITH FACING POINT LOCK.
Scale ¾" = 1 Ft.

A-522

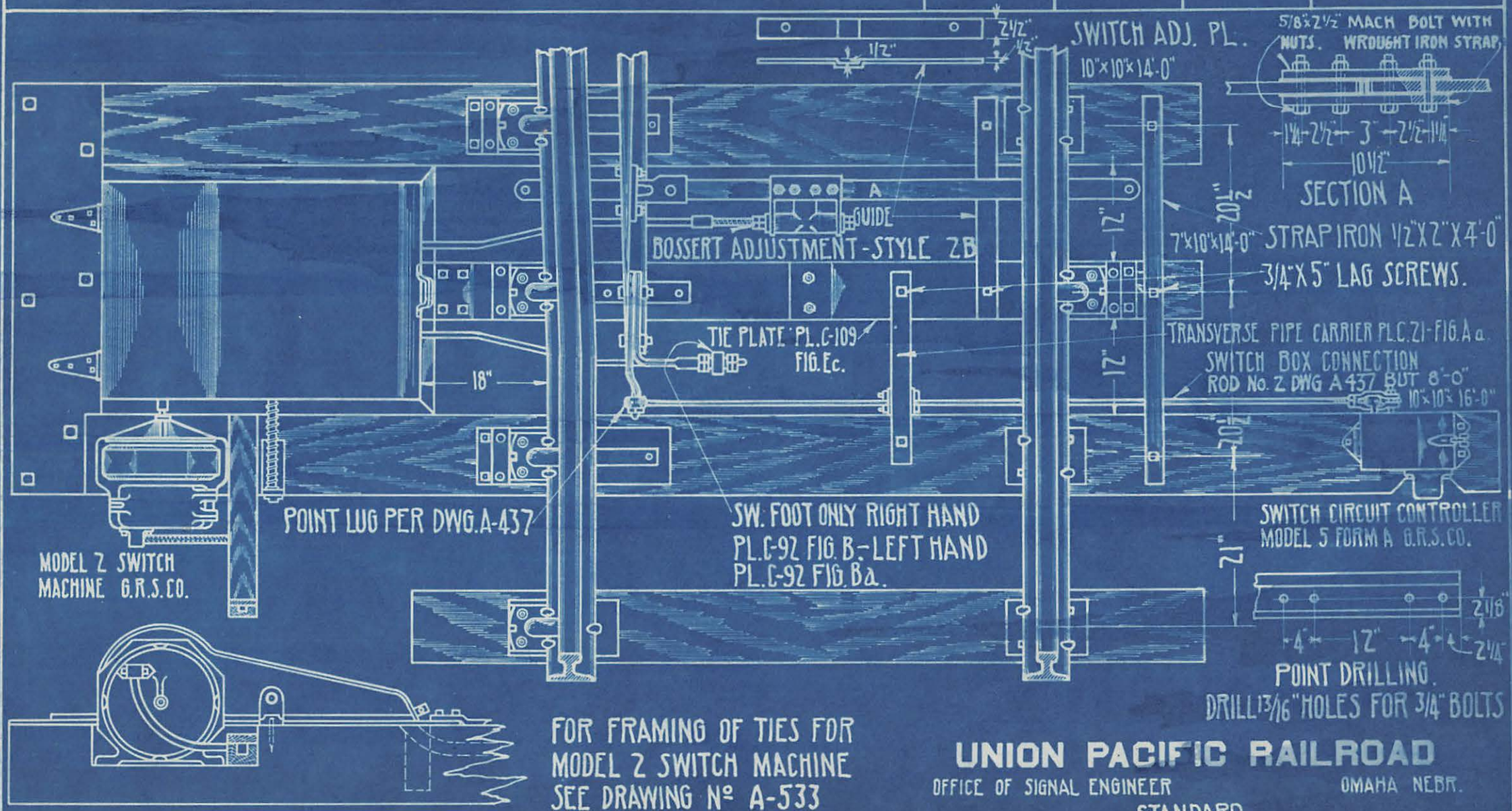



Drawn by R.A.F.
Checked by L.D.D.
Approved F.W. Offeging
Dec 20, 1918.

UNION PACIFIC RAILROAD
Office of Signal Engineer.

STANDARD
MOVABLE POINT FROG WITH FACING POINT LOCK.
Scale ¾"= 1 Ft.

A-525




FOR FRAMING OF TIES FOR MODEL 2 SWITCH MACHINE SEE DRAWING Nº A-533

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA NEBR.

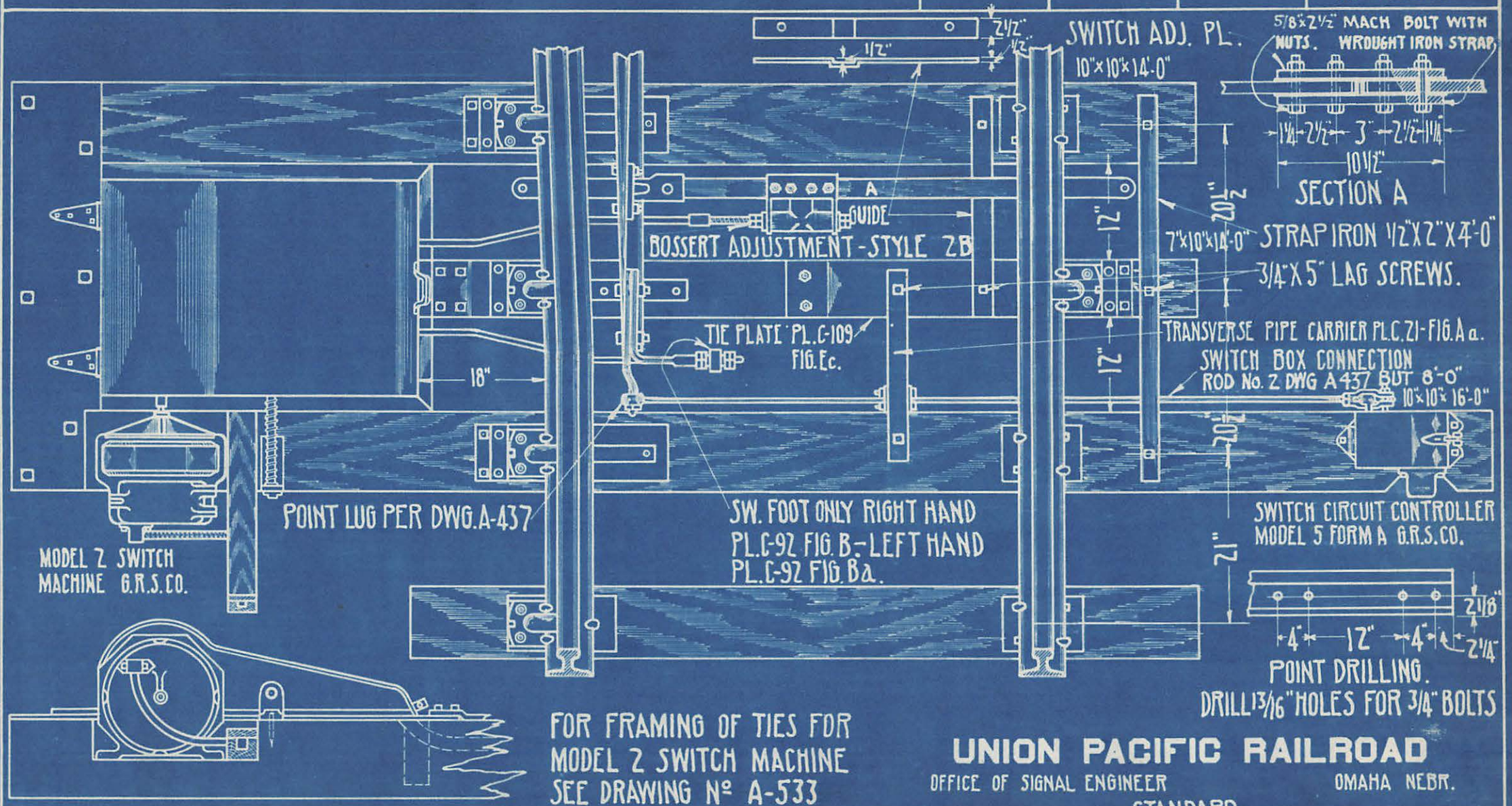
## STANDARD

## LAYOUT FOR SPLIT POINT DERAIL

SCALE 3/4" = 1 FT. — APRIL 9, 1919

DRAWN BY R.A.B. CHECKED BY R.A.T. APPROVED F. W. Hagen

A-525




FOR FRAMING OF TIES FOR MODEL 2 SWITCH MACHINE SEE DRAWING Nº A-533

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA NEBR.

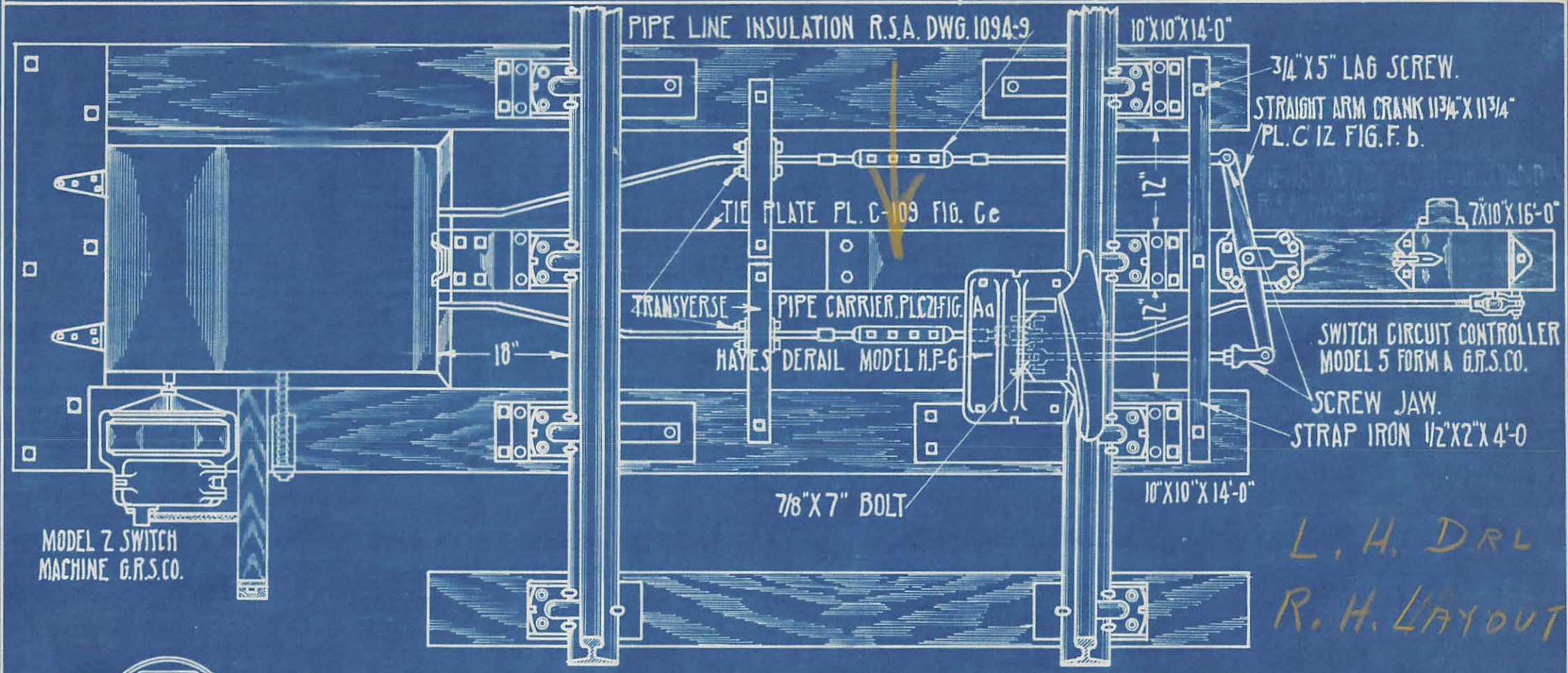
## STANDARD

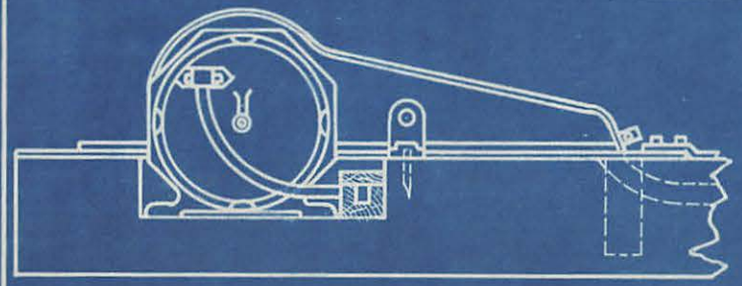
## LAYOUT FOR SPLIT POINT DERAIL

SCALE 3/4" = 1 FT. — APRIL 9, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.T. APPROVED F. W. Kleyny

A-526



FOR FRAMING OF TIES FOR
MODEL Z SWITCH MACHINE
SEE DRAWING A-533.

# UNION PACIFIC RAILROAD

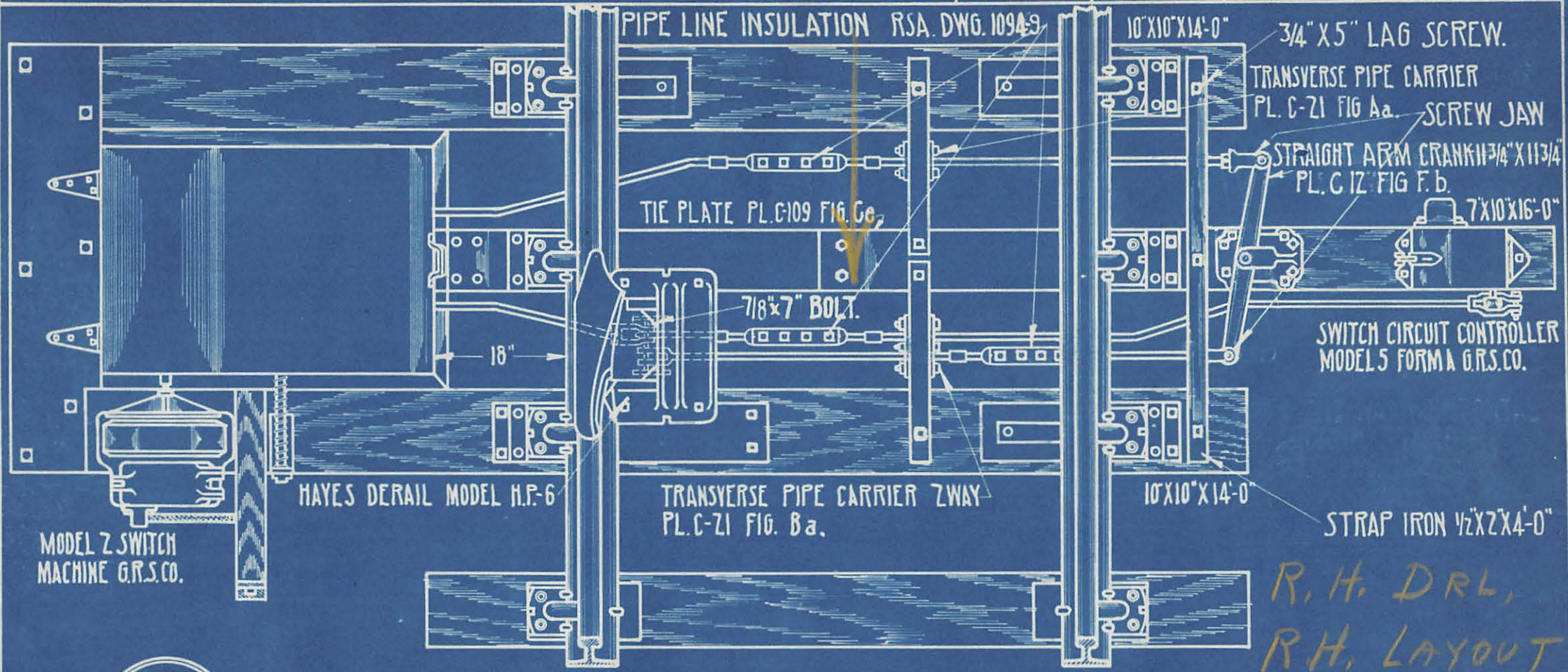
OFFICE OF SIGNAL ENGINEER — OMAHA NEBR.

## STANDARD
## LAYOUT FOR HAYES DERAIL.

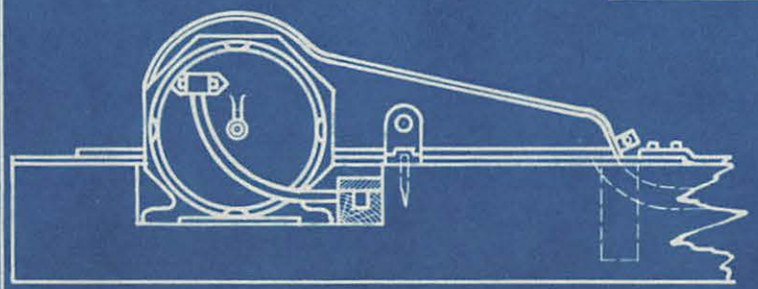
SCALE 3/4" = 1 FT. — APRIL 14, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.T. APPROVED F. W. Sheppard

A-526




R. H. DRL,
R.H. LAYOUT



FOR FRAMING OF TIES FOR
MODEL Z SWITCH MACHINE
SEE DRAWING A-533

# UNION PACIFIC RAILROAD

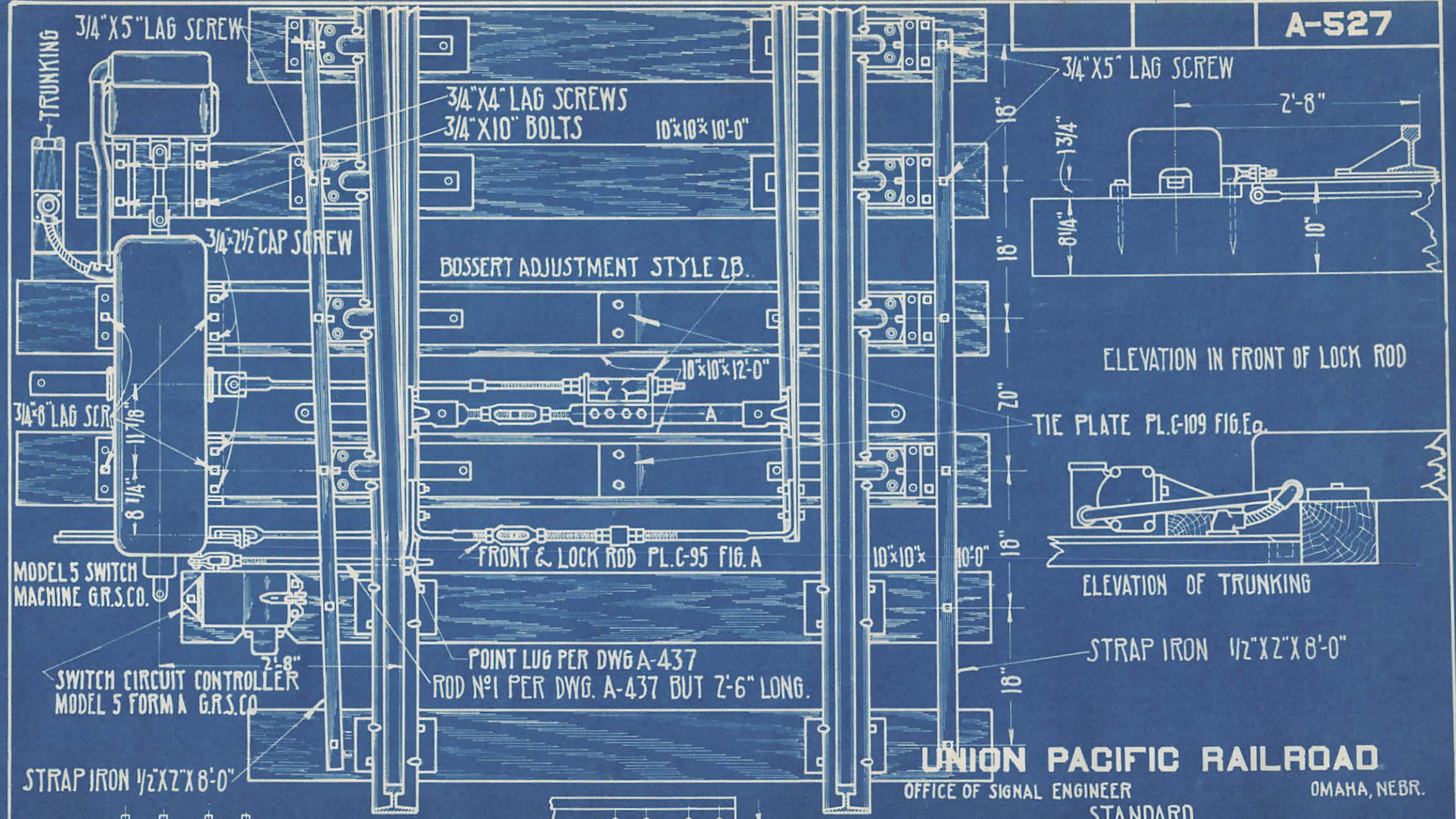
OFFICE OF SIGNAL ENGINEER — OMAHA NEBR.

## STANDARD
## LAYOUT FOR HAYES DERAIL.

SCALE 3/4" = 1 FT. — APRIL 15, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.F. APPROVED F. W. Bley

A-527




# UNION PACIFIC RAILROAD

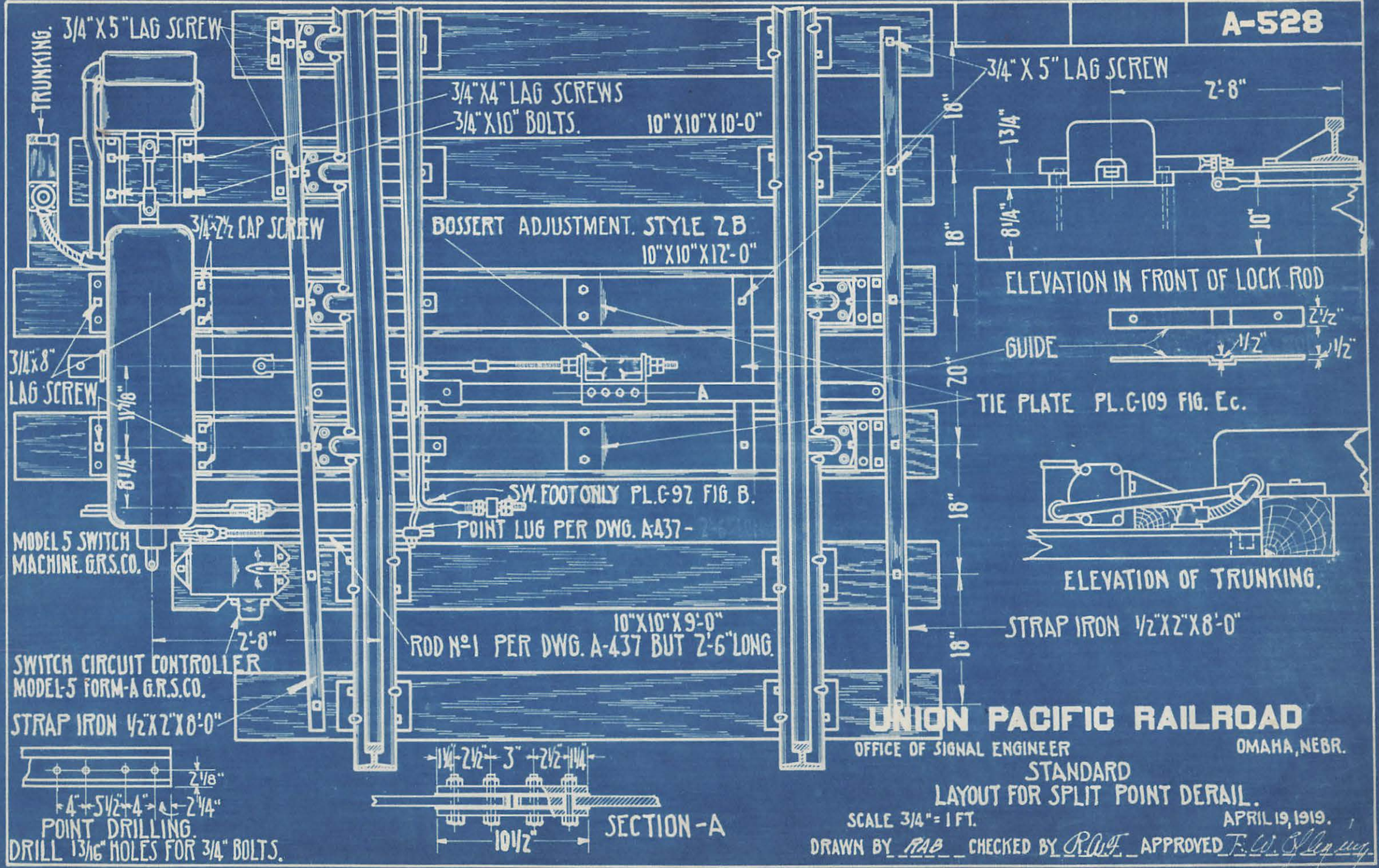
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD
## SWITCH LAYOUT USING MODEL 5 MACHINE.

SCALE 3/4" = 1 FT. — APRIL 18, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.F. APPROVED F. W. Ollquist

A-528




# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

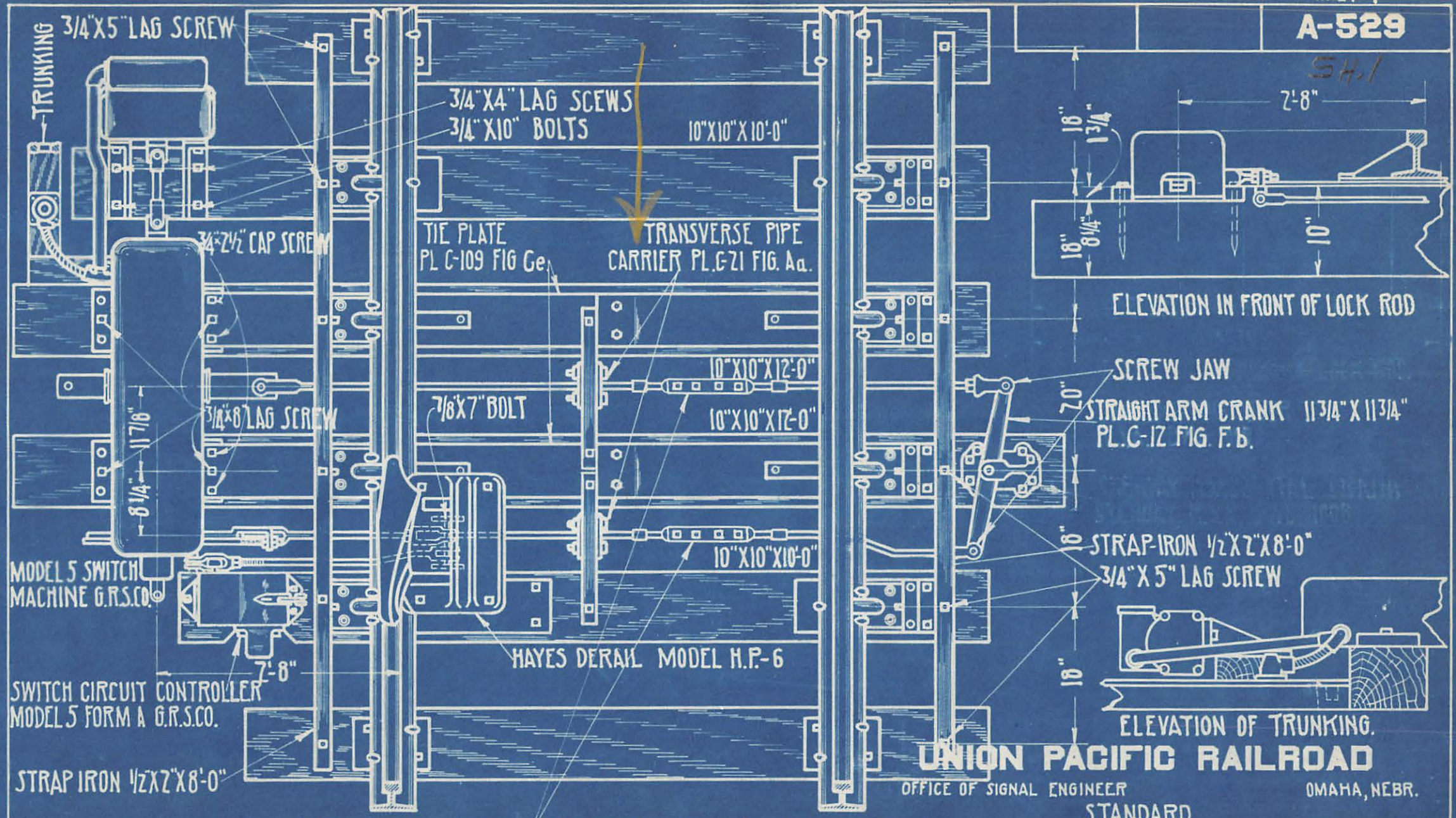
## STANDARD LAYOUT FOR SPLIT POINT DERAIL.

SCALE 3/4" = 1 FT. — APRIL 19, 1919.

DRAWN BY RAB — CHECKED BY R.W.T. — APPROVED F. W. Goodenough

A-529

SH.1




**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD

LAYOUT FOR HAYES DERAIL.

R. H. DERAIL

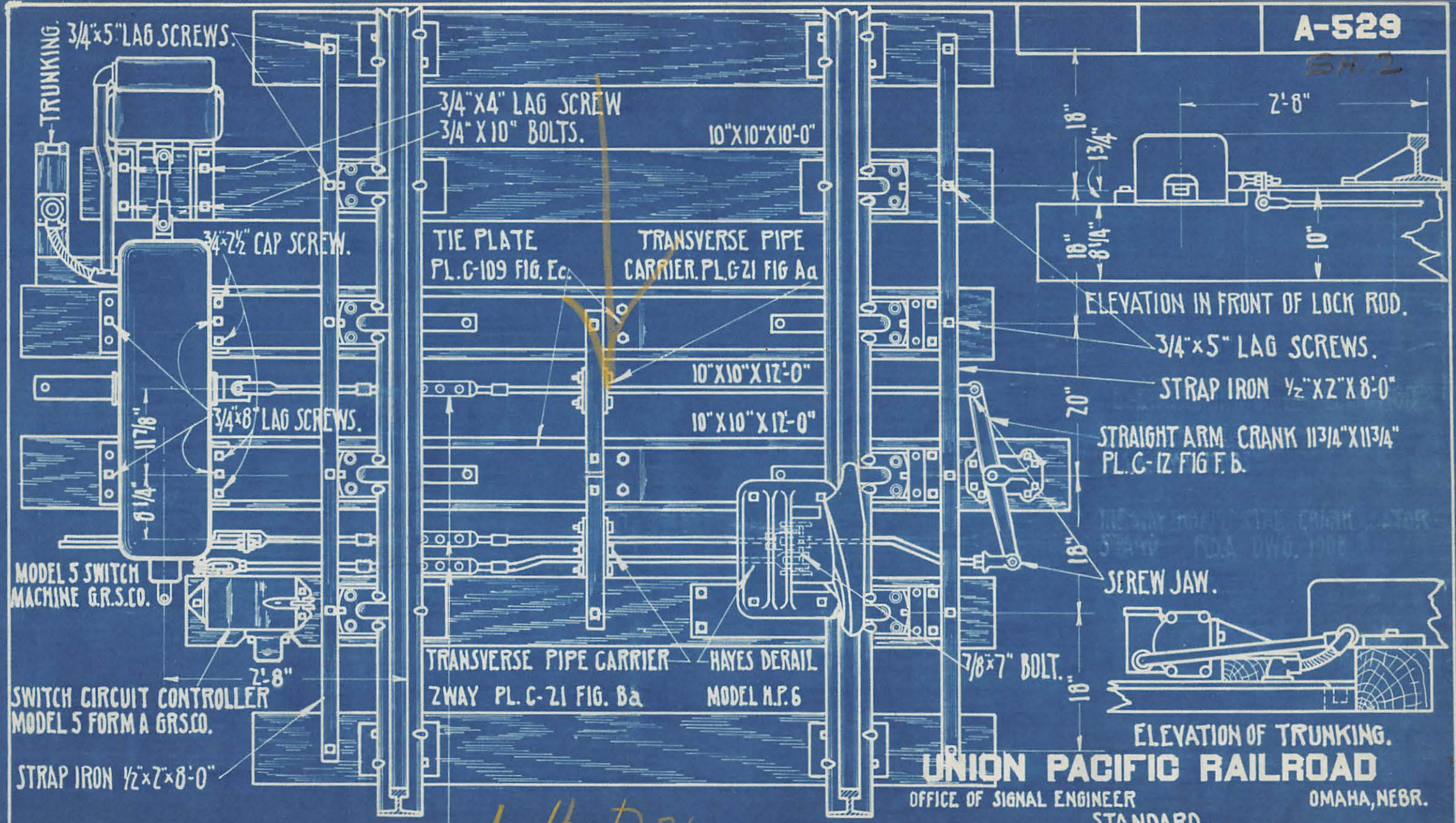
R. H. LAYOUT

SCALE 3/4"=1FT. — APRIL 23, 1919.

DRAWN BY RAB. — CHECKED BY R.O.F. — APPROVED F. W. Ellyson

A-529

Sh. 2




L. H. DRL.
R. H. LAYOUT.

**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

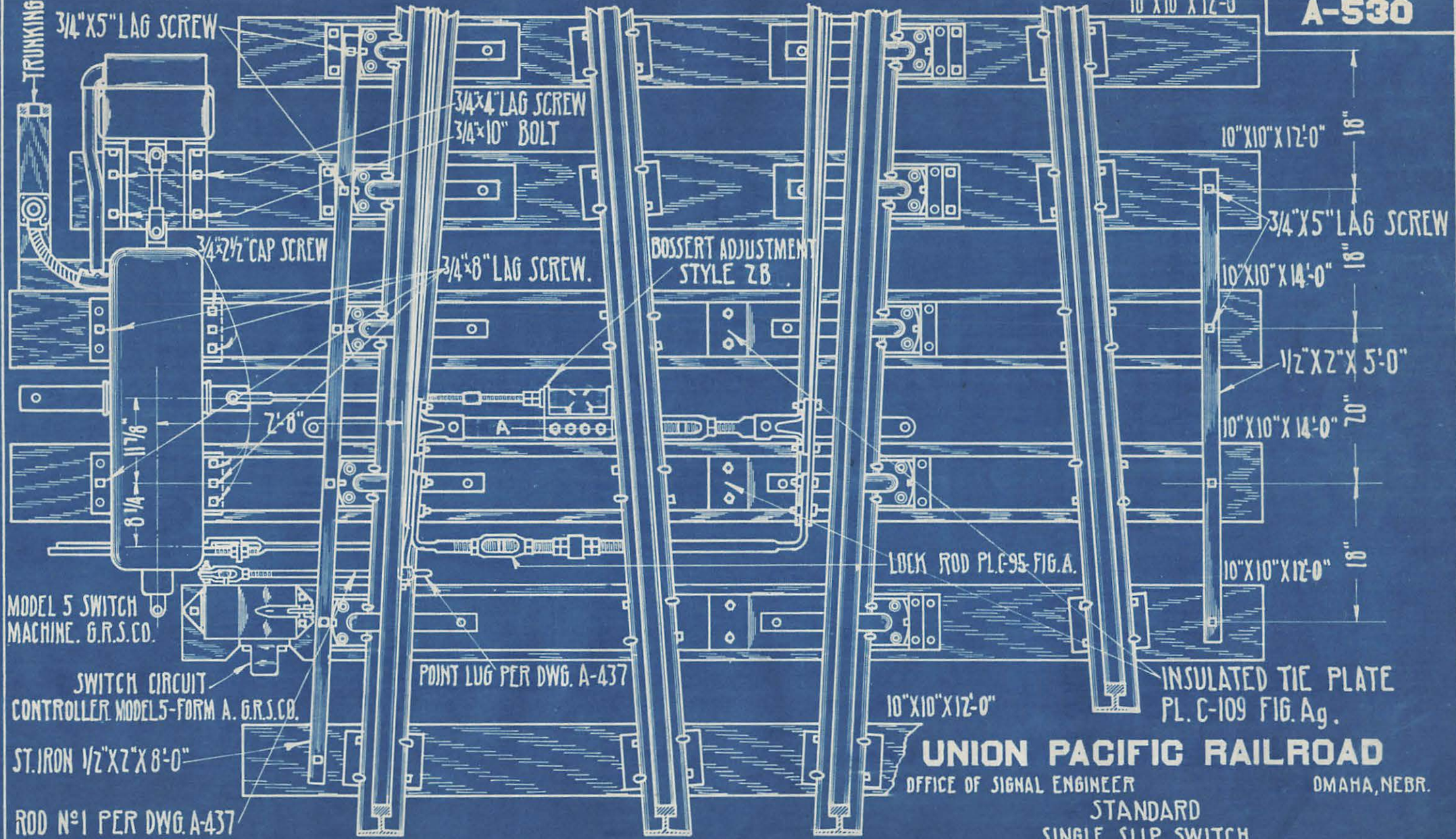
STANDARD

LAYOUT FOR HAYES DERAIL.

SCALE 3/4" = 1 FT. — APRIL 21, 1919.

DRAWN BY R.A.D. — CHECKED BY R.O.F. — APPROVED F. W. Brazier

A-530




# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD SINGLE SLIP SWITCH

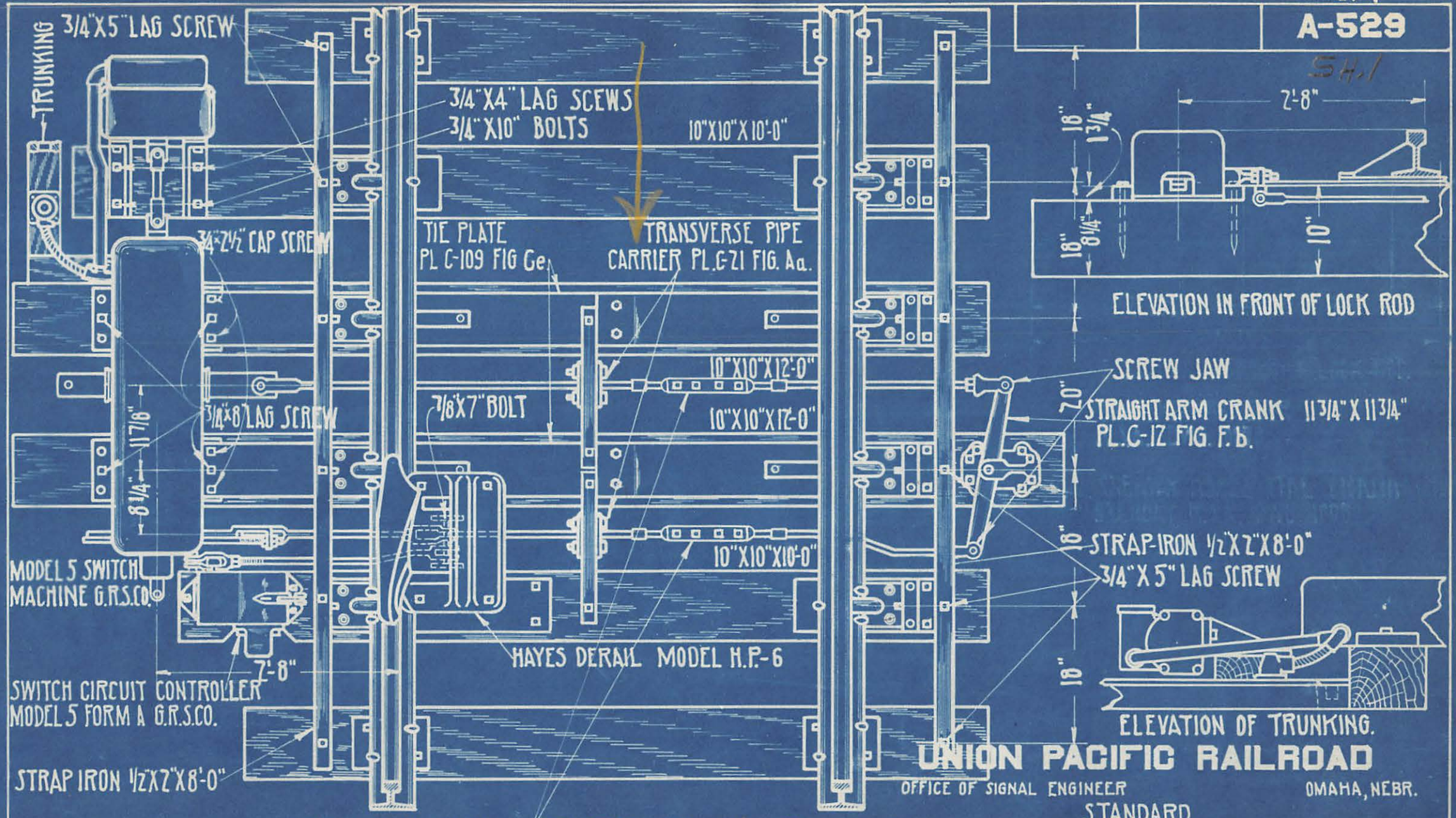
FOR SECTION-A & POINT DRILLING SEE DWG. A-528

SCALE 3/4" = 1 FT. — APRIL 26, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.F. APPROVED F.W.B. Hegeng

A-529

SH.1




**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD

LAYOUT FOR HAYES DERAIL.

R.H. DERAIL

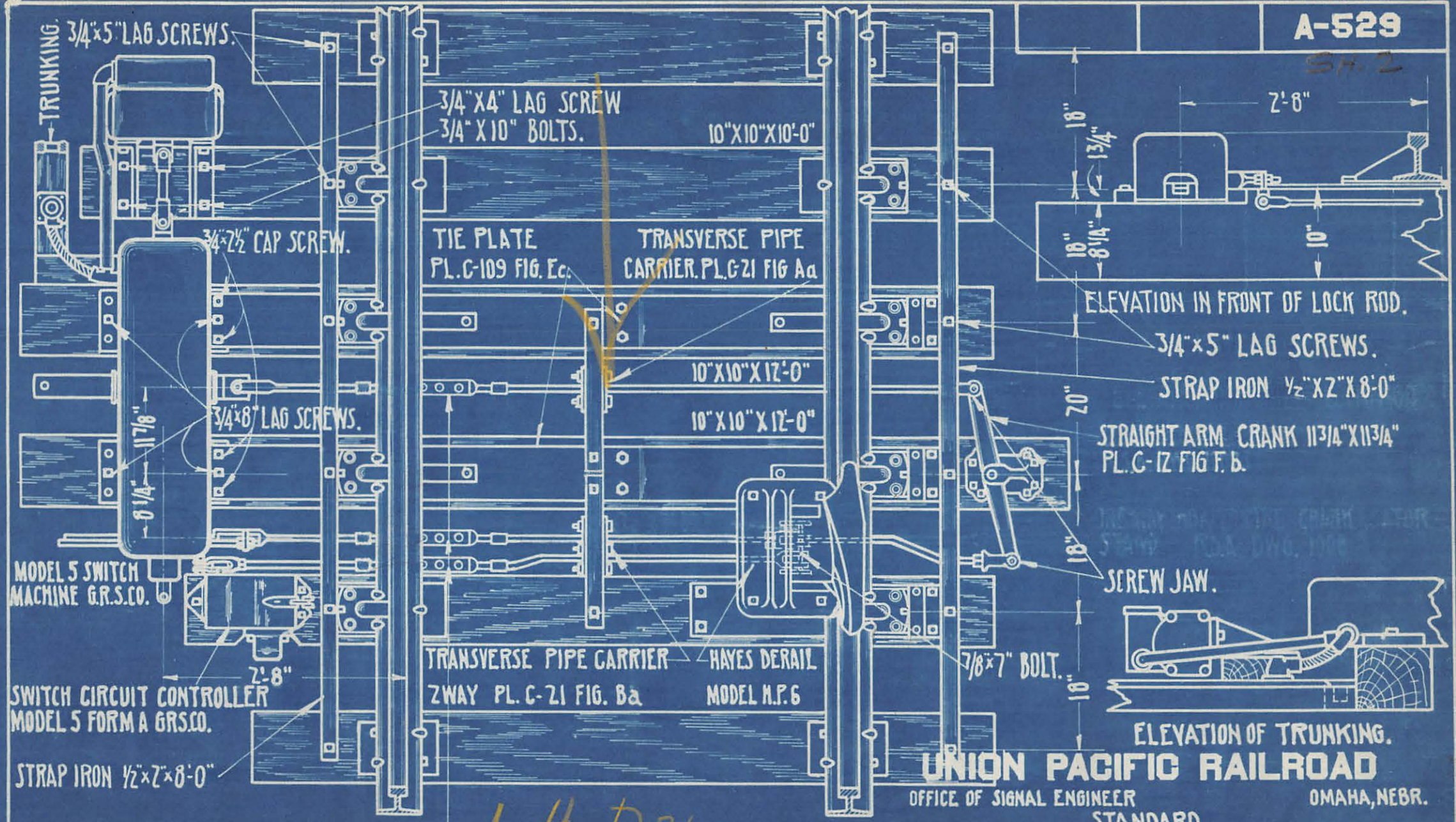
R.H. LAYOUT

SCALE 3/4"=1FT. — APRIL 23, 1919.

DRAWN BY RAB. — CHECKED BY R.O.F. — APPROVED F. W. Effinger

A-529

SH. 2




PIPE LINE INSULATION RSA DWG. 10949.

L. H. DRL.
R. H. LAYOUT.

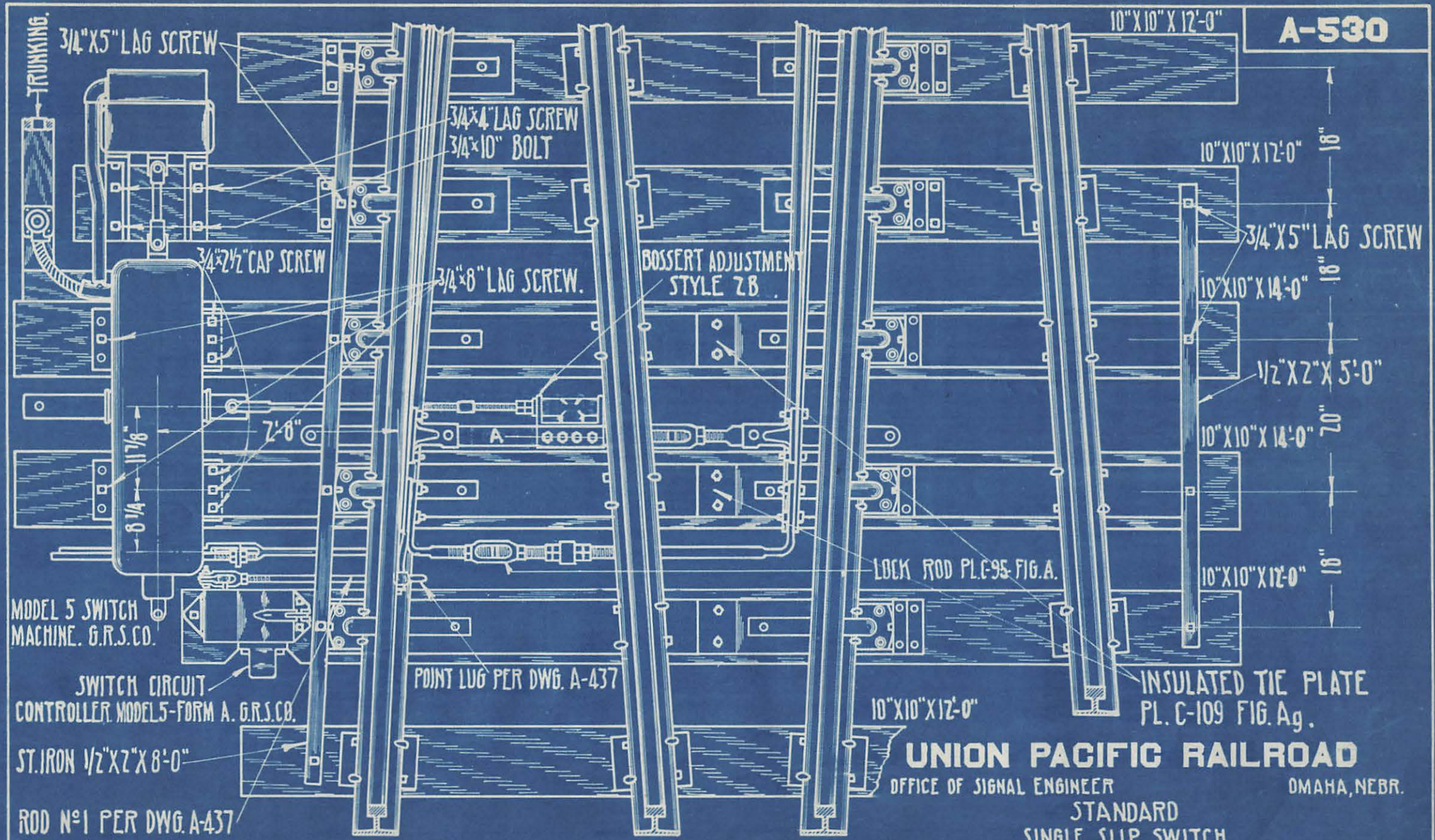
**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD
LAYOUT FOR HAYES DERAIL.

SCALE 3/4" = 1 FT. — APRIL 21, 1919.

DRAWN BY R.A.D. CHECKED BY R.O.F. APPROVED F. W. Blyney




A-530

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

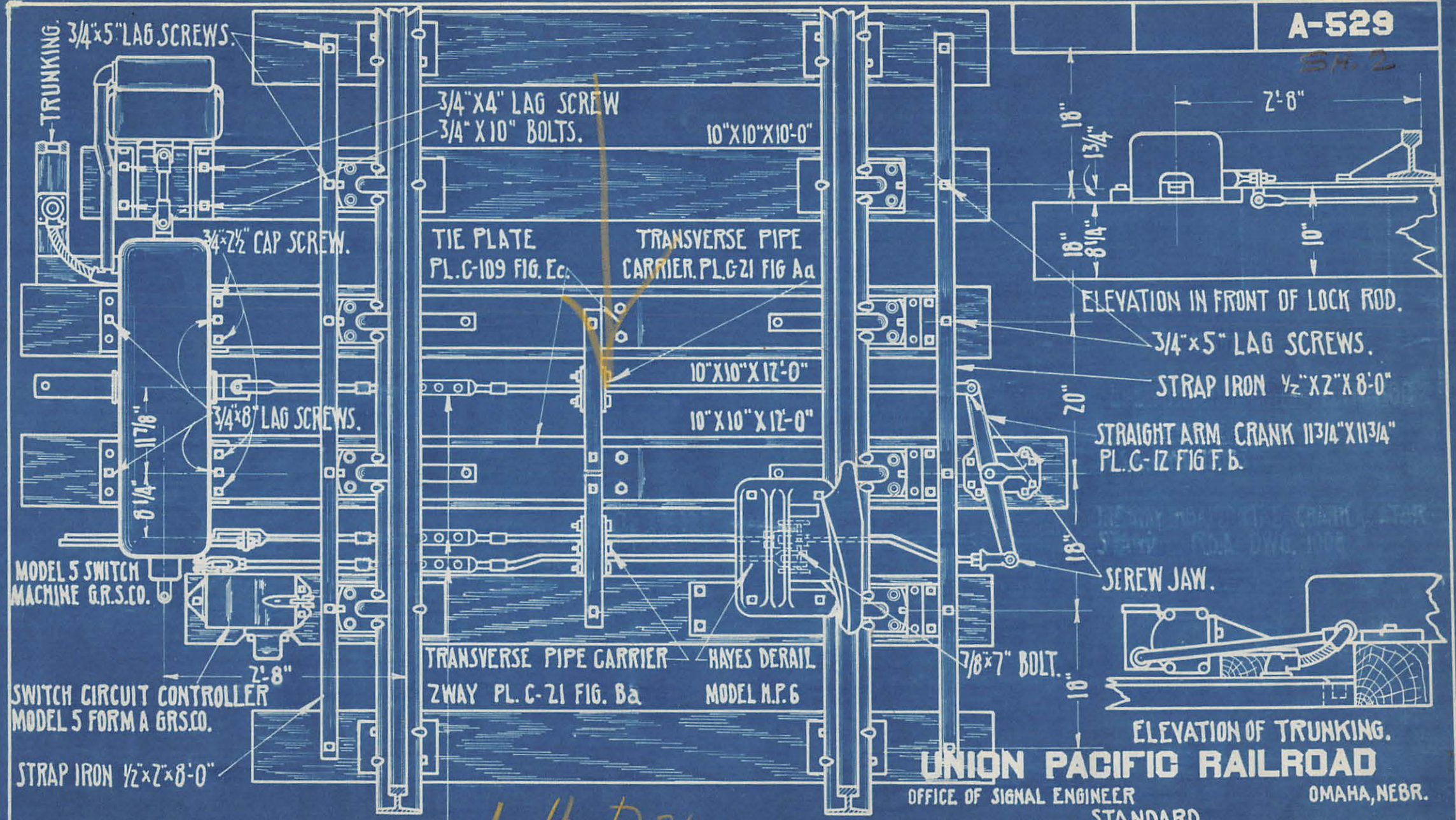
## STANDARD SINGLE SLIP SWITCH

SCALE 3/4" = 1 FT. — APRIL 26, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.B. APPROVED F.W. Sheppard

A-529

Sh. 2




L. H. DRL.

R. H. LAYOUT.

**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

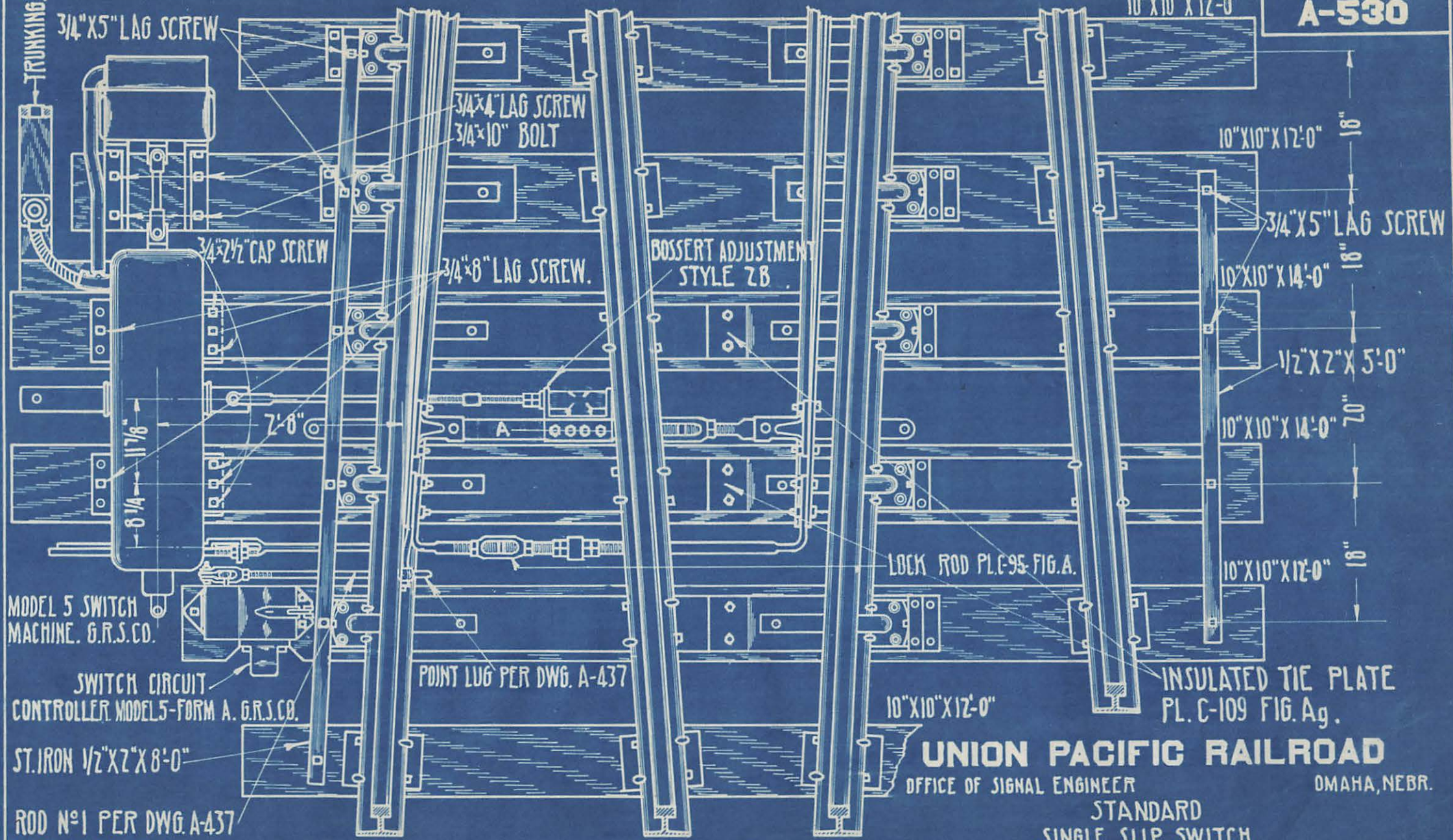
STANDARD

LAYOUT FOR HAYES DERAIL.

SCALE 3/4" = 1 FT. — APRIL 21, 1919.

DRAWN BY A.A.B. CHECKED BY R.O.F. APPROVED F. W. Ellyson

A-530




**UNION PACIFIC RAILROAD**

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

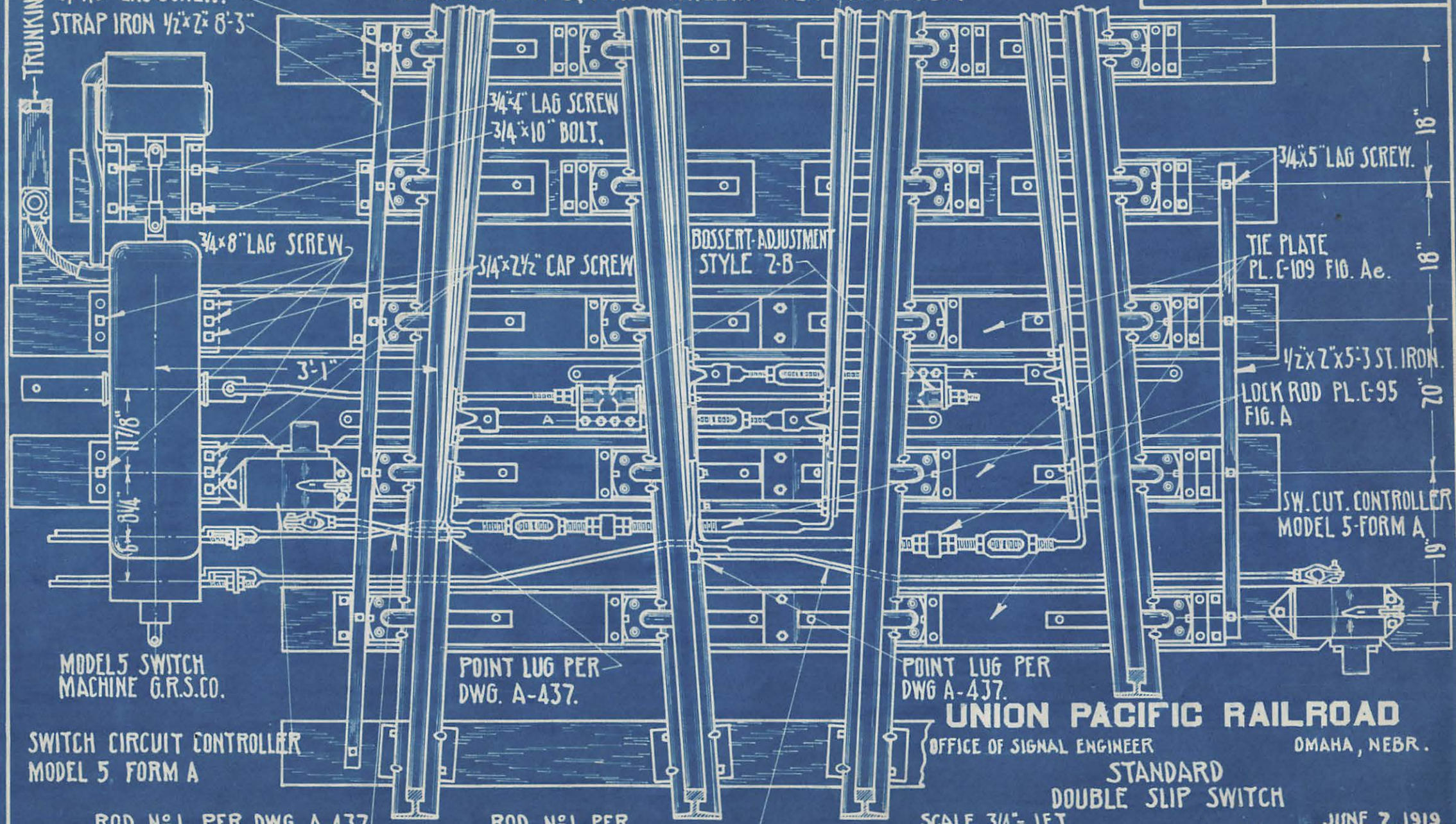
STANDARD
SINGLE SLIP SWITCH

SCALE 3/4" = 1 FT. — APRIL 26, 1919.

DRAWN BY R.A.B. CHECKED BY R.O.F. APPROVED F.W. Effinger

A-531

FOR SECTION A & POINT DRILLING SEE DWG. A-528.




SWITCH CIRCUIT CONTROLLER
MODEL 5 FORM A

ROD Nº1 PER DWG. A-437
BUT 18" LONG.

ROD Nº1 PER
DWG. A-437 BUT 6'-6 LONG

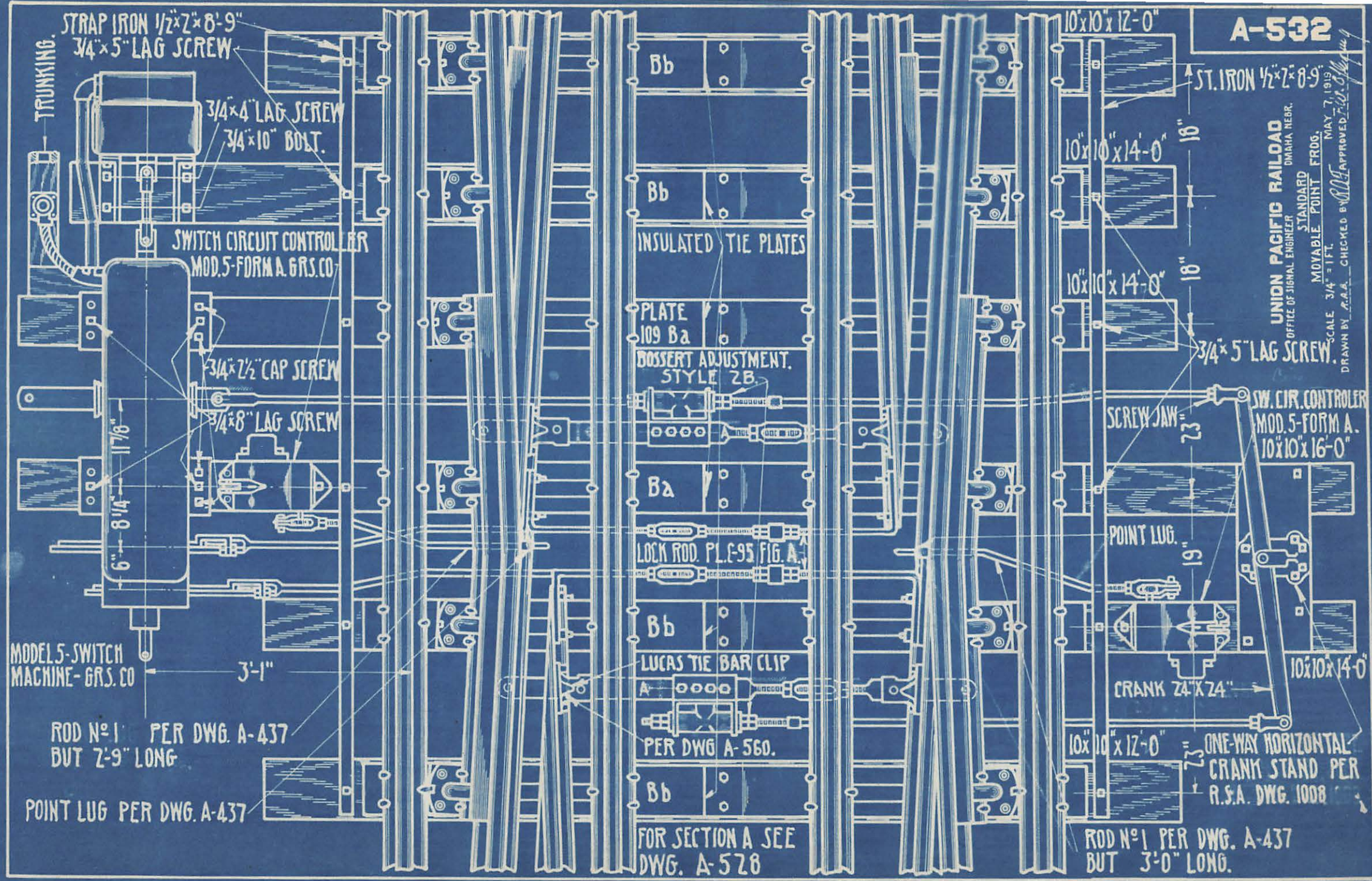
**UNION PACIFIC RAILROAD**

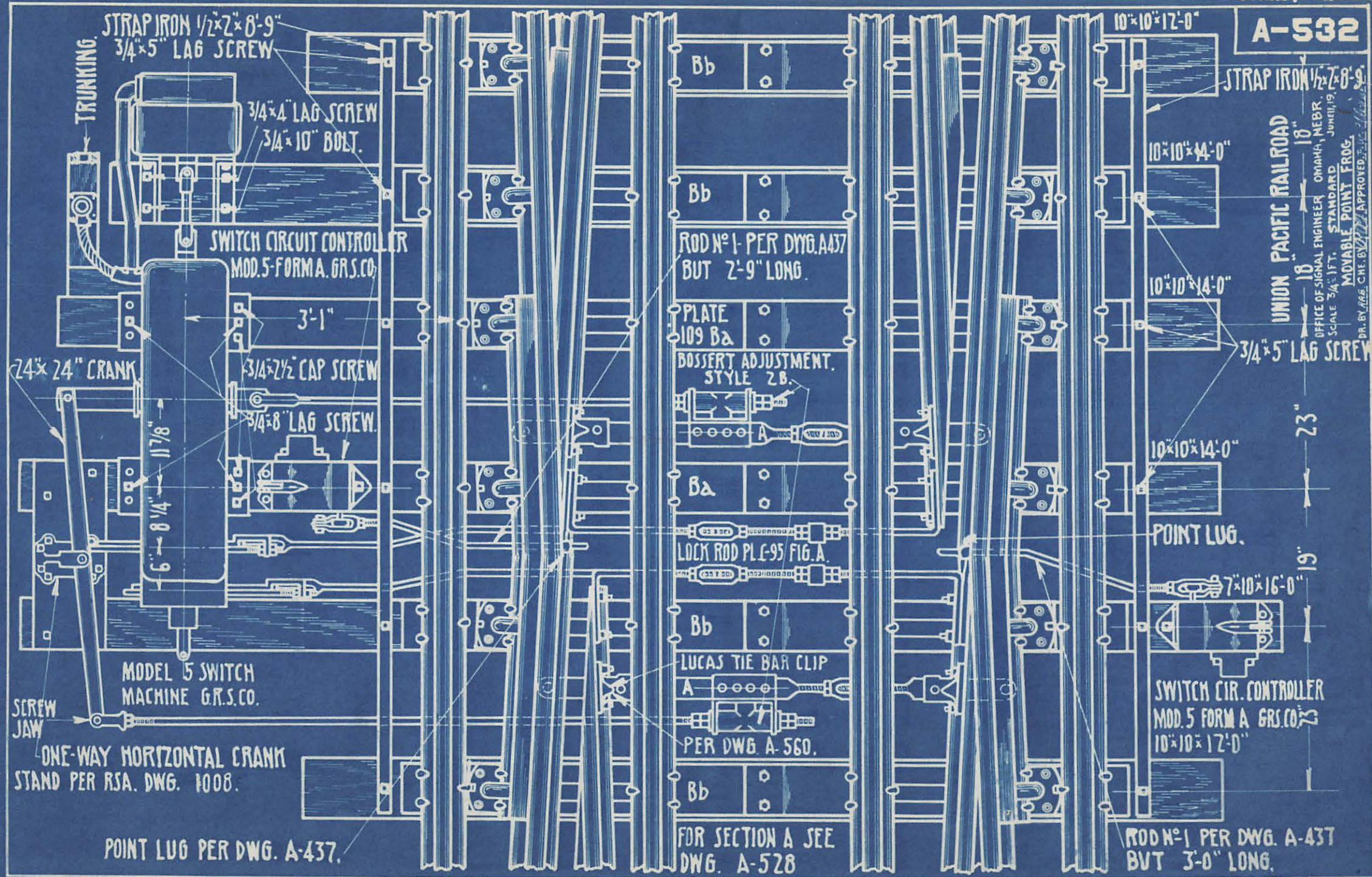
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD
DOUBLE SLIP SWITCH

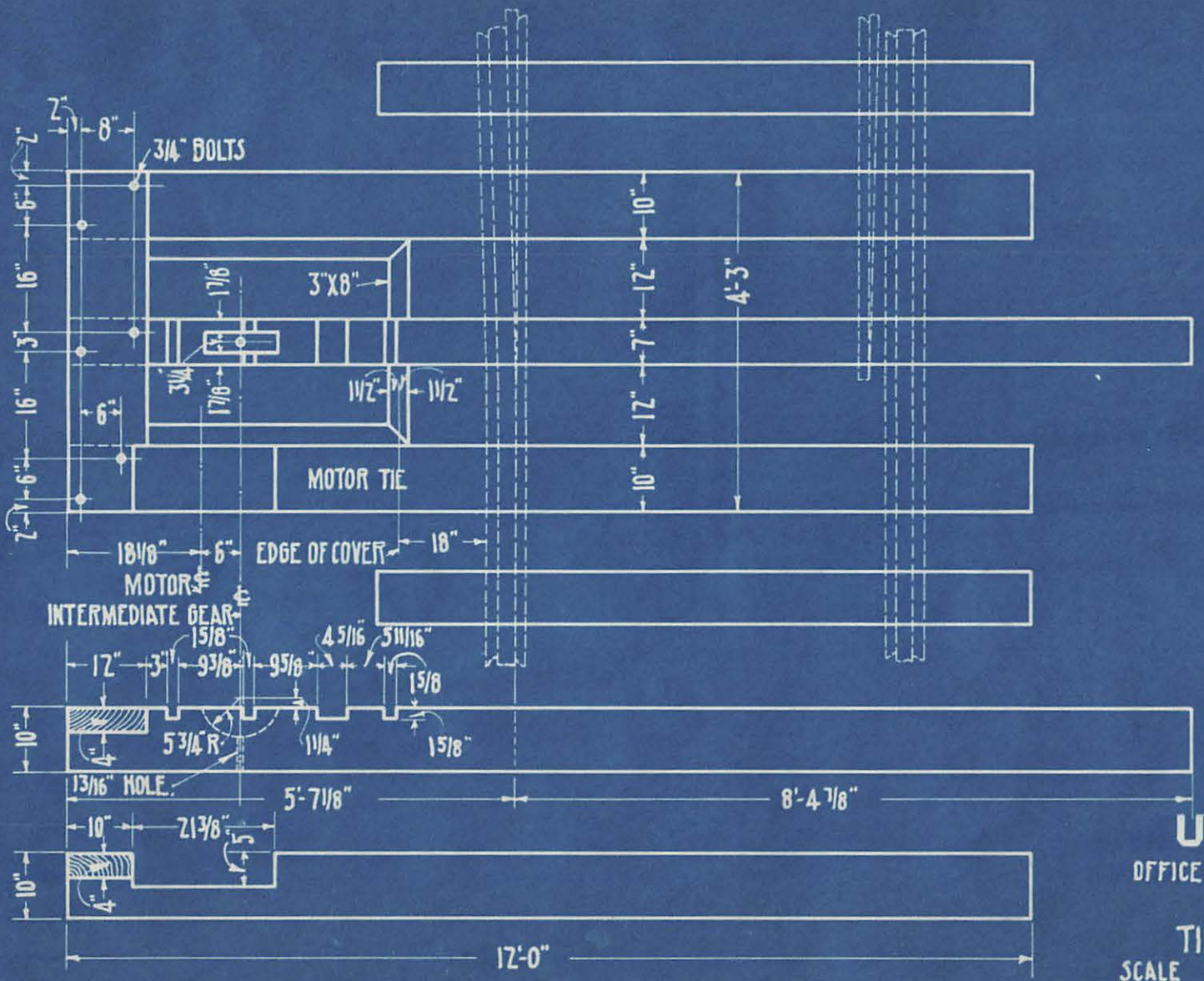
SCALE 3/4"= 1FT. — JUNE 2, 1919.

DRAWN BY RAB. CHECKED BY R.A.T. APPROVED F.W. Elgin


A-532
STRAP IRON 1½"×2"×8'-9"
¾"×5" LAG SCREW
TRUNKING.
¾"×4" LAG SCREW
¾"×10" BOLT.
SWITCH CIRCUIT CONTROLLER
MOD.5-FORM A. GRS.CO
¾"×2½" CAP SCREW
¾"×8" LAG SCREW
11⅞"
8¼"
6"
MODEL 5-SWITCH
MACHINE-GRS.CO
3'-1"
ROD Nº 1 PER DWG. A-437
BUT 2'-9" LONG
POINT LUG PER DWG. A-437
Bb
Bb
INSULATED TIE PLATES
PLATE
109 Ba
BOSSERT ADJUSTMENT.
STYLE 2B.
Ba
LOCK ROD. PL.G-95 FIG. A.
Bb
LUCAS TIE BAR CLIP
PER DWG A-560.
Bb
FOR SECTION A SEE
DWG. A-528
10"×10"×12'-0"
ST. IRON ½"×2"×8'-9"
10"×10"×14'-0"
18"
18"
10"×10"×14'-0"
¾"×5" LAG SCREW.
UNION PACIFIC RAILROAD
OFFICE OF SIGNAL ENGINEER
OMAHA NEBR.
STANDARD
MOVABLE POINT FROG.
SCALE 3/4" = 1 FT.
MAY 7, 1919
DRAWN BY A.A.A. CHECKED BY
APPROVED
SW. CIR. CONTROLER
MOD. 5-FORM A.
10"×10"×16'-0"
SCREW JAW
23"
POINT LUG.
19"
CRANK 24"×24"
10"×10"×14'-0"
10"×10"×12'-0"
23"
ONE-WAY HORIZONTAL
CRANK STAND PER
R.S.A. DWG. 1008
ROD Nº 1 PER DWG. A-437
BUT 3'-0" LONG.


A-532
UNION PACIFIC RAILROAD
OFFICE OF SIGNAL ENGINEER, OMAHA, NEBR.
SCALE 3/4" = 1 FT. JUNE 11, 19..
STANDARD
MOVABLE POINT FROG.
DR. BY RAG CHK. BY APPROVED
STRAP IRON 1/2"x2"x8'-9"
3/4"x5" LAG SCREW
TRUNKING.
3/4"x4" LAG SCREW
3/4"x10" BOLT.
SWITCH CIRCUIT CONTROLLER
MOD.5-FORM A. GRS.CO.
3'-1"
24"x 24" CRANK
3/4"x2½" CAP SCREW
3/4"x8" LAG SCREW.
11 7/8"
8 1/4"
6"
MODEL 5 SWITCH
MACHINE G.R.S.CO.
SCREW
JAW
ONE-WAY HORIZONTAL CRANK
STAND PER RSA. DWG. 1008.
POINT LUG PER DWG. A-437.
Bb
Bb
ROD Nº 1- PER DWG. A437
BUT 2'-9" LONG.
PLATE
109 Ba
BOSSERT ADJUSTMENT.
STYLE 2B.
A
Ba
LOCK ROD PLG-95 FIG. A.
Bb
LUCAS TIE BAR CLIP
A
PER DWG. A-560.
Bb
FOR SECTION A SEE
DWG. A-528
10"x10"x17'-0"
10"x10"x14'-0"
10"x10"x14'-0"
10"x10"x14'-0"
POINT LUG.
7"x10"x16'-0"
SWITCH CIR. CONTROLLER
MOD. 5 FORM A GRS.CO.
10"x10"x17'-0"
ROD Nº 1 PER DWG. A-437
BUT 3'-0" LONG.
STRAP IRON 1/2"x2"x8'-9"
3/4"x5" LAG SCREW
18"
18"
23"
19"
23"

A-533




# UNION PACIFIC RAILROAD

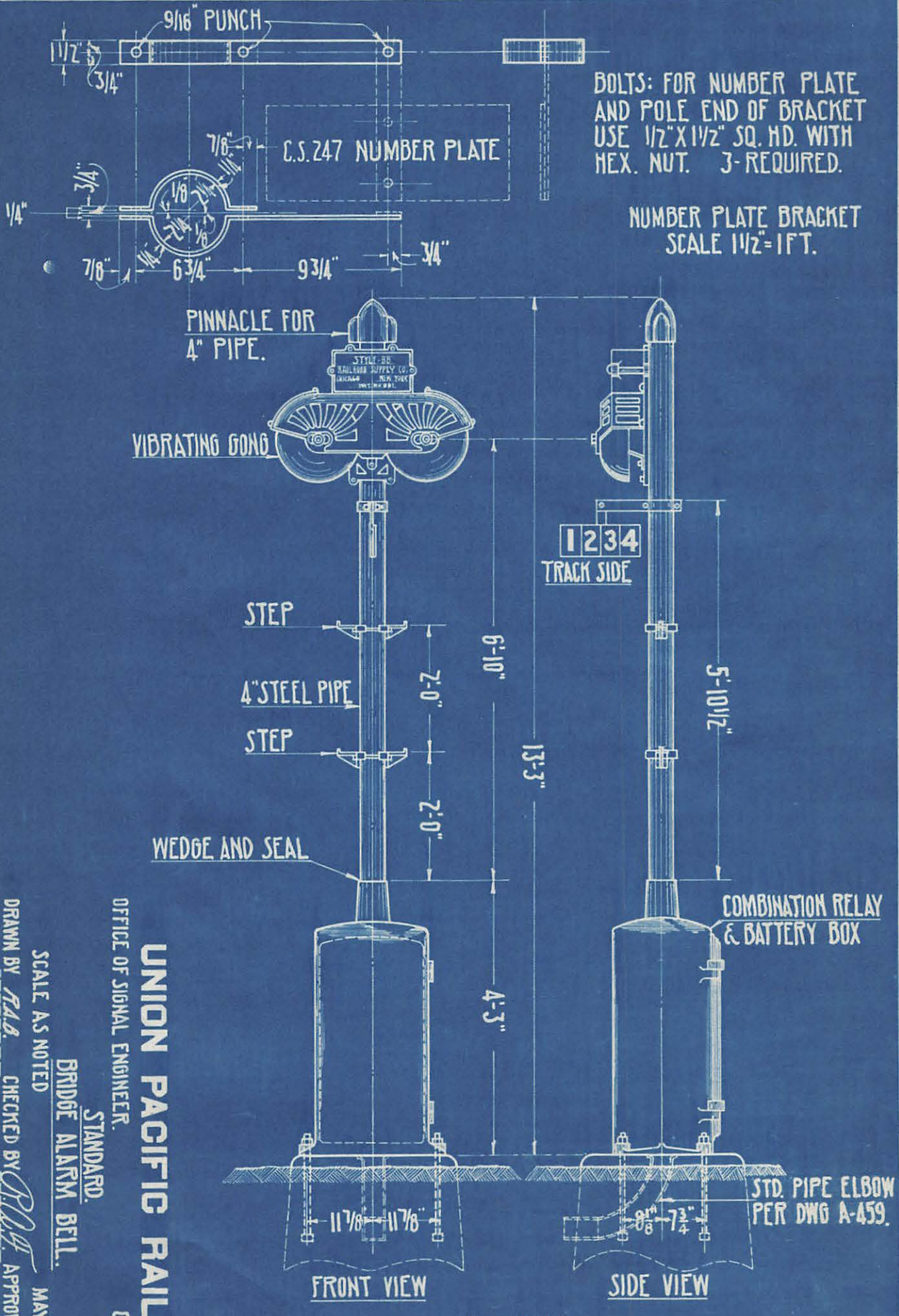
OFFICE OF SIGNAL ENGINEER. OMAHA, NEBR.

STANDARD.

TIE FRAMING FOR MODEL 2 SWITCH MACHINE.

SCALE 1/2" = 1 FT. JUNE 5, 1919.

DRAWN BY R.A.B. CHECKED BY R.A.F. APPROVED F. W. Brazier




# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER.

OMAHA, NEBR.

STANDARD.

BRIDGE ALARM BELL.

SCALE AS NOTED

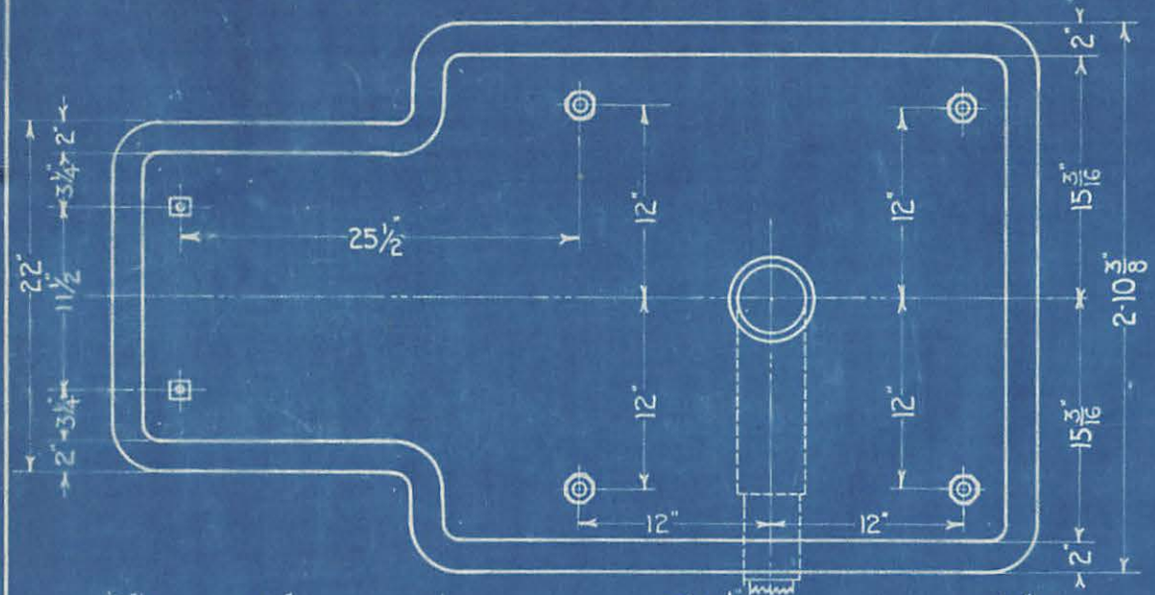
DRAWN BY H.A.A. CHECKED BY R.L.H.

MAY 26, 1919.

APPROVED, F. H. Stuart

A-536

A 537



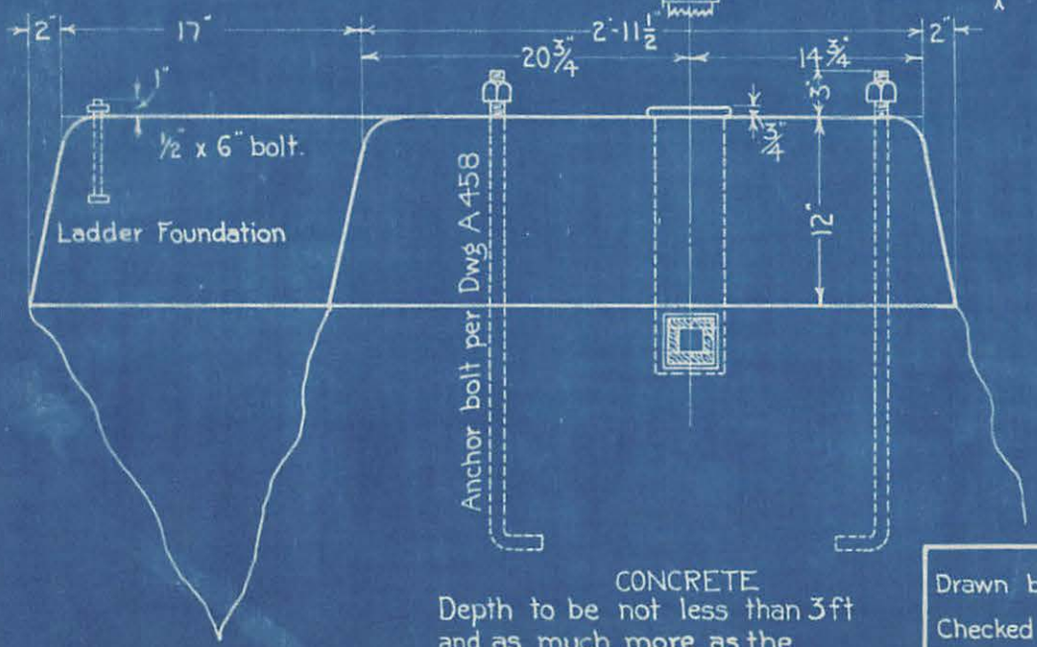

NOTE:-

For pipe elbow see drawing A 459.
For anchor bolt see drawing A 458.
For iron form for signal foundation see drawing C 682
On new fills and other places where concrete foundation would be liable to settle the timber foundation shown on drawing A 407 should be used.

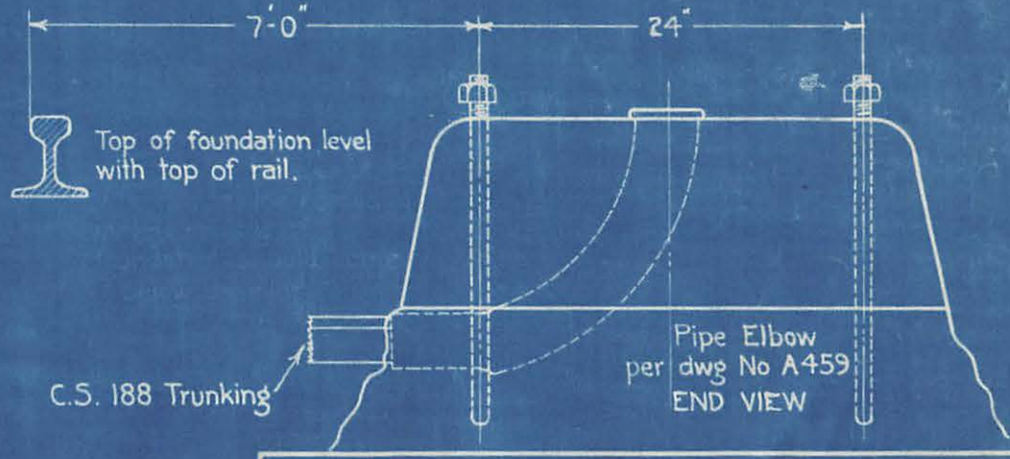
Concrete Specifications.

Concrete in each foundation 7 Sacks cement.
1 Yard Sand.
2 Yards stone.

Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and white wash with neat cement




CONCRETE
Depth to be not less than 3 ft and as much more as the character of the ground calls for.
SIDE VIEW




UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer.

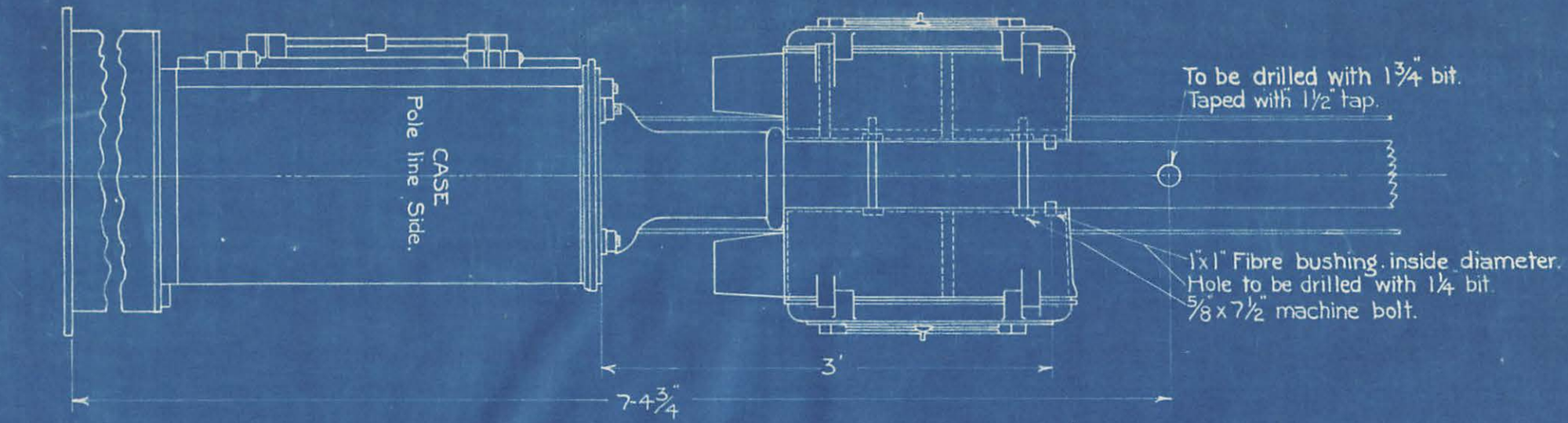
Drawn by W.E.M.
Checked by L.D.D.
Approved F.W.P.
August 5-1911

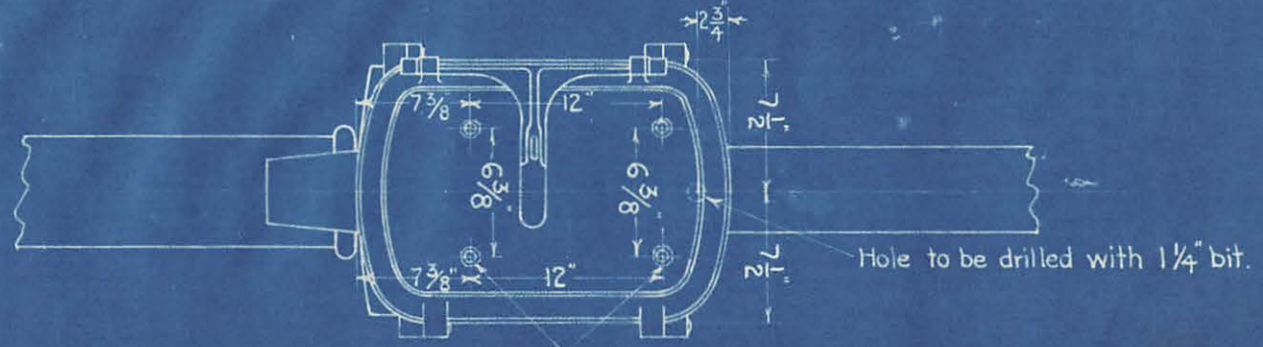
FOUNDATION
CONCRETE FOUNDATION FOR ONE ARM HALL MOTOR SIGNAL

Revised

Scale 1" = 1ft

A 538




MATERIAL REQUIRED FOR EACH SIGNAL

4 - ⅝"x7½" Machine bolts nuts and nut locks.
1 - 1½" Street elbow.
2 - 1"x1" Fibre bushings.

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer

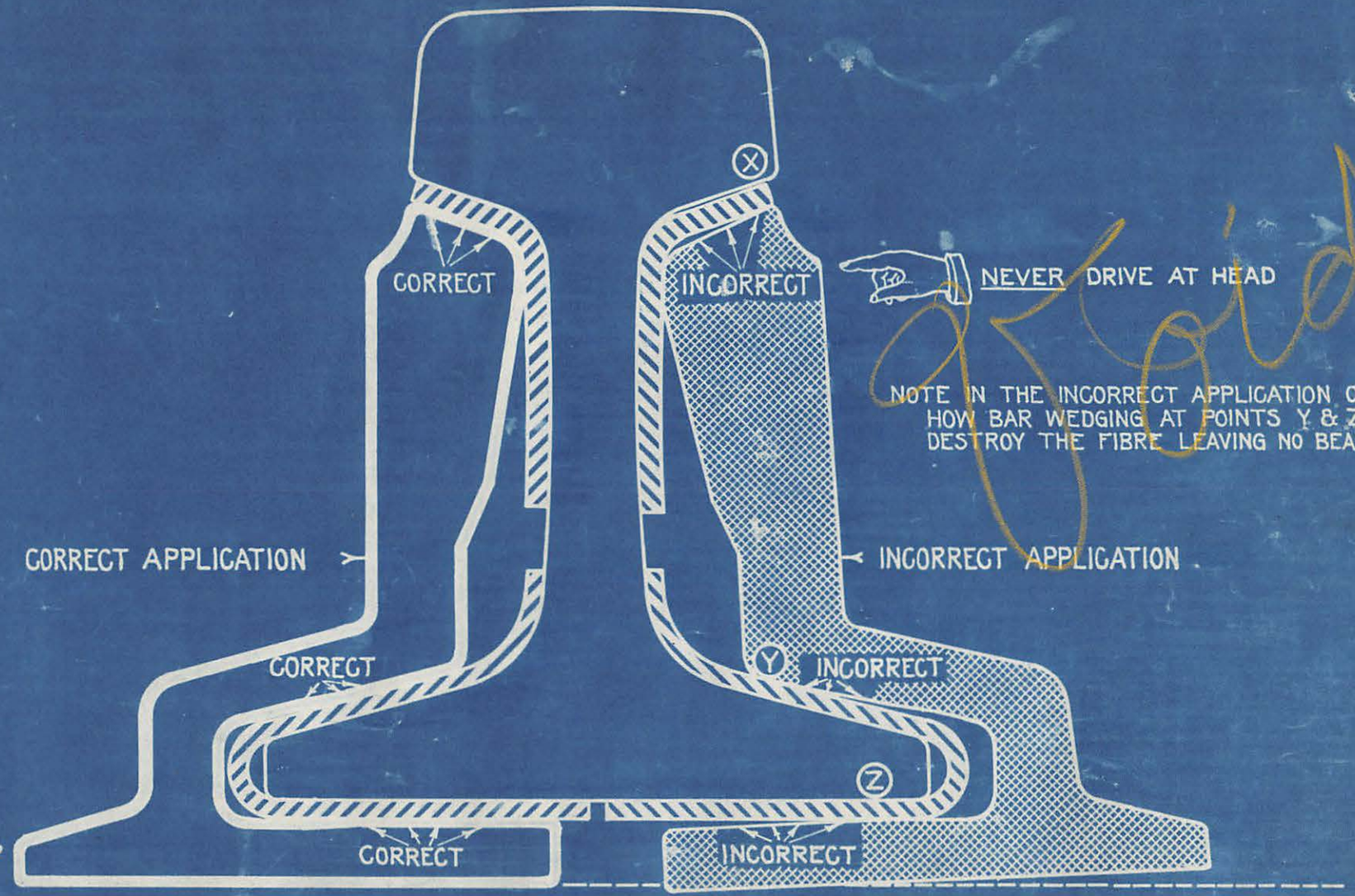
Drawn by W.E.M.
Checked by L.D.L.
Approved F.W.P.
Aug 10-1911

ARRANGEMENT OF HALL MOTOR SIGNAL AND RELAY BOX.

Revised

Scale 1" = 1ft.

A-539




Avoid

NOTE IN THE INCORRECT APPLICATION OF BARS, HOW BAR WEDGING AT POINTS Y & Z WILL DESTROY THE FIBRE LEAVING NO BEARING AT X.

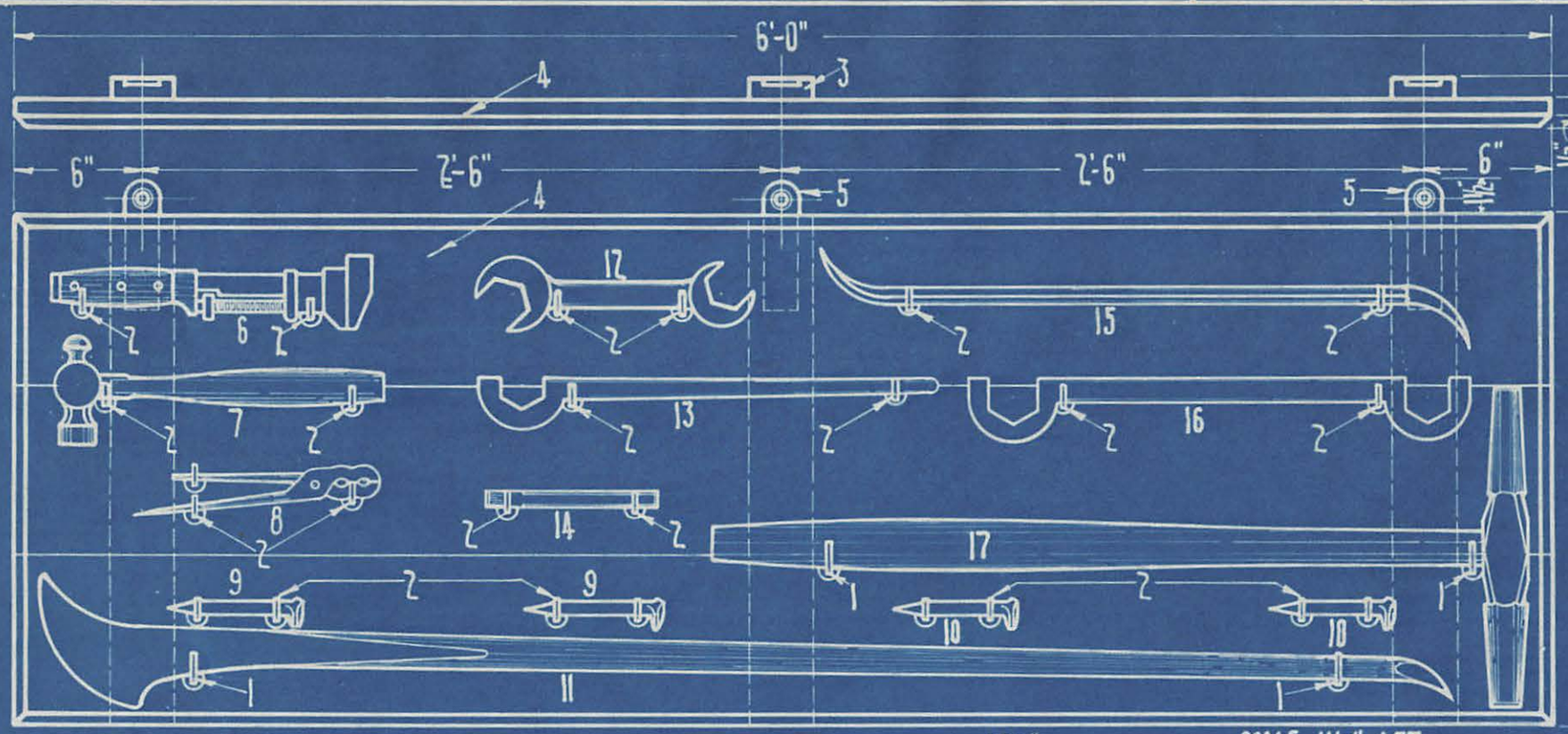
DRIVE AT BASE WHILE TIGHTENING THE BOLTS.

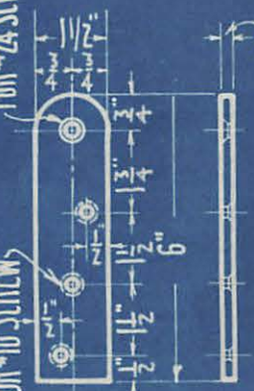
Drawn by R.A.F.
Checked by R.A.F.
Approved F.W.Pflegung
Nov. 18 1918

UNION PACIFIC RAILROAD
Office of Signal Engineer

CONTINUOUS INSULATED JOINT
CORRECT AND INCORRECT APPLICATION

A-547



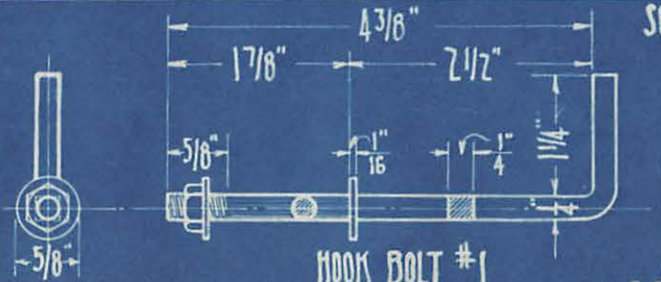




HANGER
WROT IRON #5
SCALE 3"=1FT.

SCALE 1 1/2" = 1 FT.

BILL OF MATERIAL.

| NO | REQ | NAME. | DWG. NO. | NO | REQ | NAME. | DWG. NO. |
|---|---|---|---|---|---|---|---|
| 1 | 4 | HOOK BOLTS | A-547 | 10 | 2 | ST'D. TRACK SPIKE | M.W.30006 |
| 2 | 25 | " " | A-547 | 11 | 1 | ST'D. CLAW BAR | CS-202 |
| 3 | 3 | 7/8"×3"×2'-0" CLEATS | A-547 | 12 | 1 | SPECIAL WRENCH | A-2454 |
| 4 | 1 | 13/8"×2'-0"×6'-0" BOARD | A-547 | 13 | 1 | SPECIAL WRENCH | A-2456 |
| 5 | 3 | HANGERS | A-547 | 14 | 1 | 8" COLD CHISEL | |
| 6 | 1 | 14" MONKEY WRENCH | | 15 | 1 | 30" TOMMY BAR | A-1226 |
| 7 | 1 | 2# MACHINE HAMMER | | 16 | 1 | LUTZ ADJUSTER | A-2455 |
| 8 | 1 | 10" GAS PLIERS | | 17 | 1 | STD. SPIKE MAUL | CS-208 |
| 9 | 2 | ST'D. TRACK SPIKE | CS-266 | | | | |




HOOK BOLT #1
SCALE 1/2 FULL SIZE.

HOOK BOLT #2

NOTE: IN LOCATING HOOK BOLTS, SAME SHOULD BE PLACED SO THEY DO NOT RUN THROUGH CLEATS #3

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

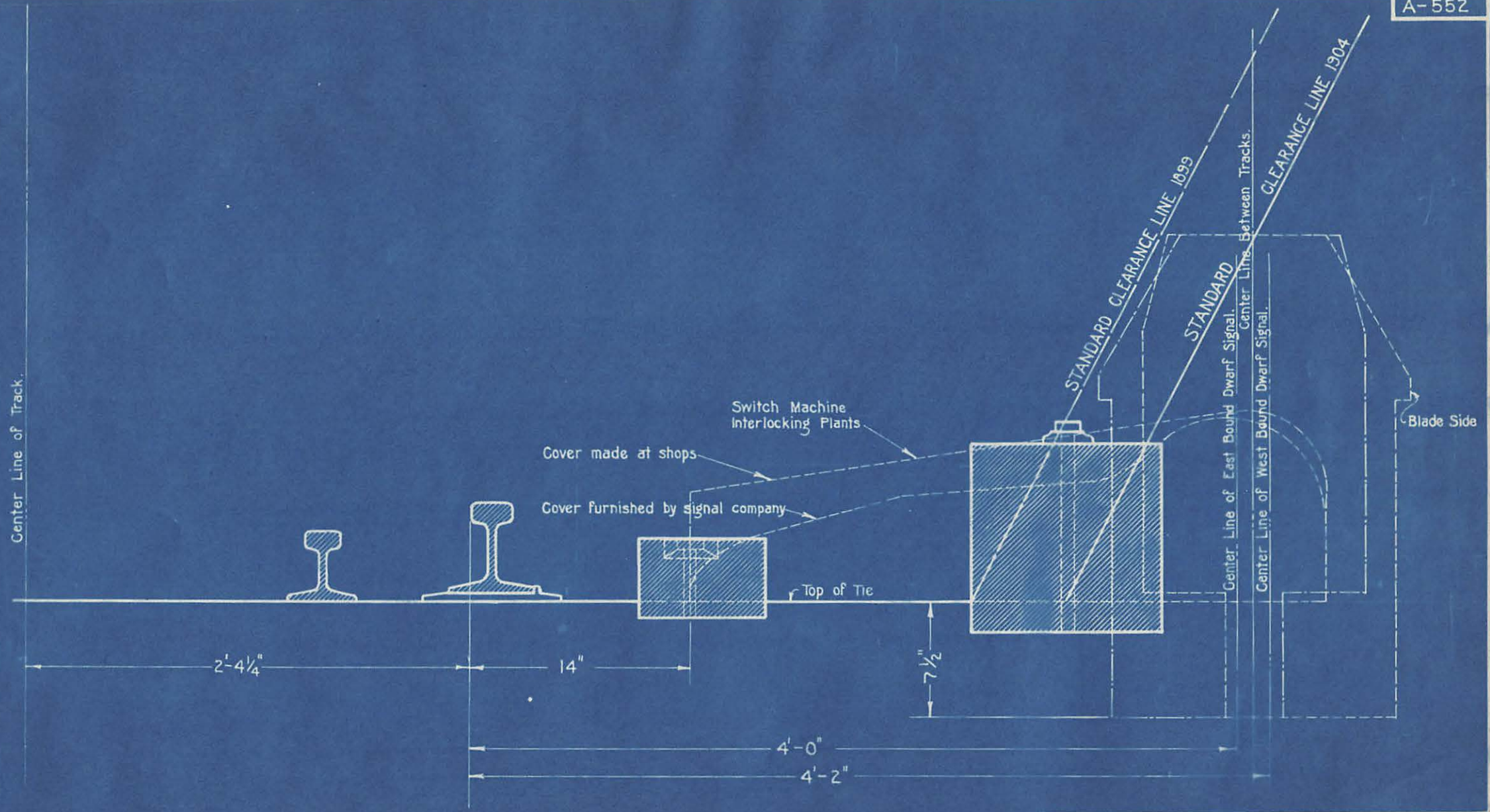
STANDARD

TOOL BOARD AND EQUIPMENT FOR INTERLOCKING TOWERS.

SCALE - AS NOTED — APRIL 5, 1919.

DRAWN BY R.A.P. CHECKED BY R.A.F. APPROVED F.W. Pfleging

A-552

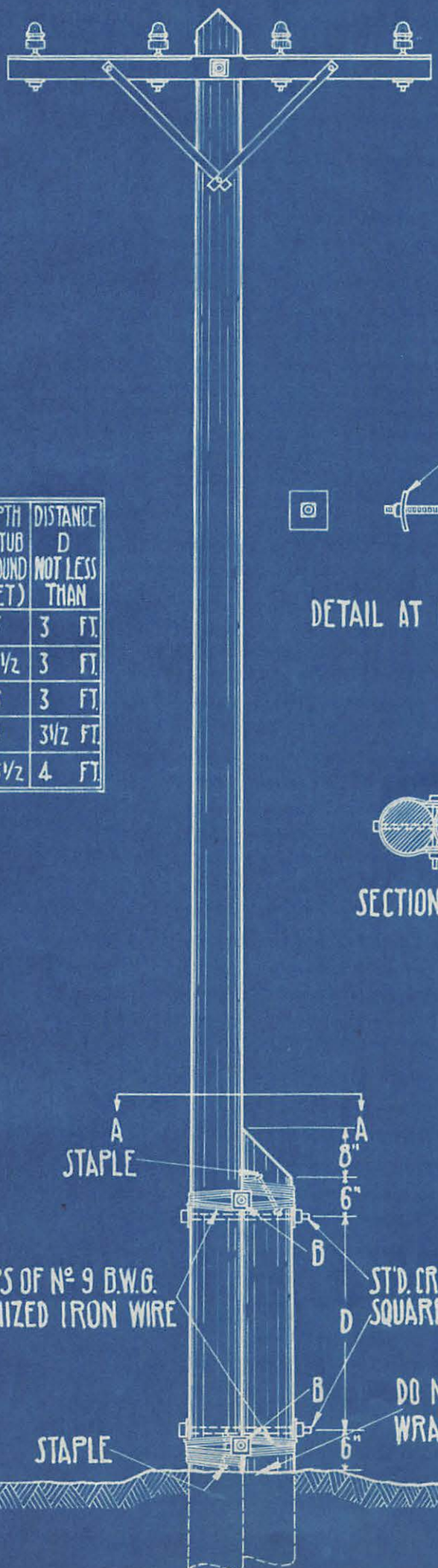



UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by R.A.F.
Approved F.H.P.
Feb. 9, 1917.

CLEARANCE DIAGRAM
FOR G.R.S. CO. ELECTRICAL AND R.S.A. MECHANICAL DWARF SIGNALS.
Scale 1½" = 1 Ft.

| LENGTH OF POLE (FEET) | MINIMUM LENGTH OF STUB (FEET) | DEPTH OF STUB IN GROUND (FEET) | DISTANCE D NOT LESS THAN |
|---|---|---|---|
| 25 | 9 | 5 | 3 FT. |
| 30 | 9½ | 5½ | 3 FT. |
| 35 | 10 | 6 | 3 FT. |
| 40 | 10½ | 6 | 3½ FT. |
| 45 | 11½ | 6½ | 4 FT. |




# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER.
OMAHA, NEBR.

STANDARD.

STUB REINFORCEMENT FOR POLES

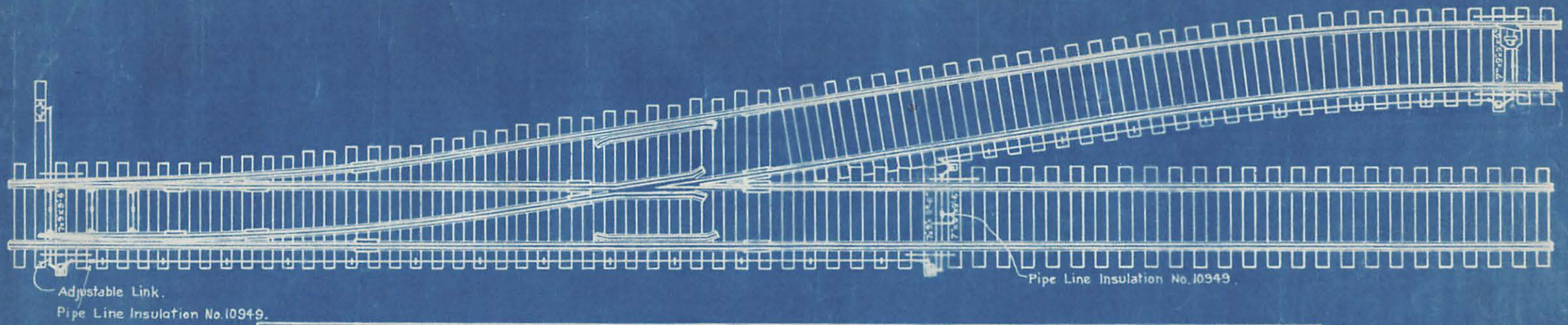
SCALE 1/2" = 1 FT.

JUNE 14, 1919.

DRAWN BY R.A.B. CHECKED BY R.D.Y. APPROVED F.W. Thompson

A-553

A-554




## BILL OF MATERIAL

| | | | |
|---|---|---|---|
| | From Hayes Company | | |
| 1 | Derail Model G-5 | | |
| | From U.S.& S. Co. | | |
| 275' | Black Pipe Plate G-5 Fig. D. | 4 | Fir Ties 7"x9"x 9'-6" |
| 30 | Pipe Rivets Plate G-5 Fig. 64 a. | 16 | Machine Bolts and Nuts ¾"x 9". |
| 4 | One Way Horizontal Cranks Plate G-9 Fig. D. | 24 | Lag Screws ¾"x 4". |
| 1 | Transverse Pipe Carrier Plate G-21 Fig A a. | 84 | Lag Screws ½"x 2½". |
| 42 | One Way Wrought Pipe Carriers Plate G 20 Fig. G a. | 12 | Cut Washers ¾". |
| 1 | Adjustable link Plate G-2 Fig K. | 12 | Cast Washers ¾" |
| 1 | Pipe Line Insulation per R.S.A. Drawing 1094 No. 109412. | | NOTE:- |
| 1 | Pipe Line Insulation per R.S.A. Drawing 1094 No. 10949 | | When road crosses between switch and derail, the following additional material should be ordered. |
| 3 | Screw Jaws Plate G-2 Fig. E. | | From U.S.& S. Co. |
| 4 | Solid Jaws Plate G-1 Fig. E. | 2 | Stuffing Boxes Plate G-23 Fig. D. |
| | From Shops | | From Shops |
| 6 | Pcs. Flat Iron ½"x 2"x 4'-0" | 50' | 2" Galv. Iron pipe. |

Revised July 26, 1917.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by L.D.D.
Approved F.W. Pflegner
June 10/1916.

HAYES DERAIL ON SIDE TRACK
OPERATED FROM MAIN LINE SWITCH STAND.

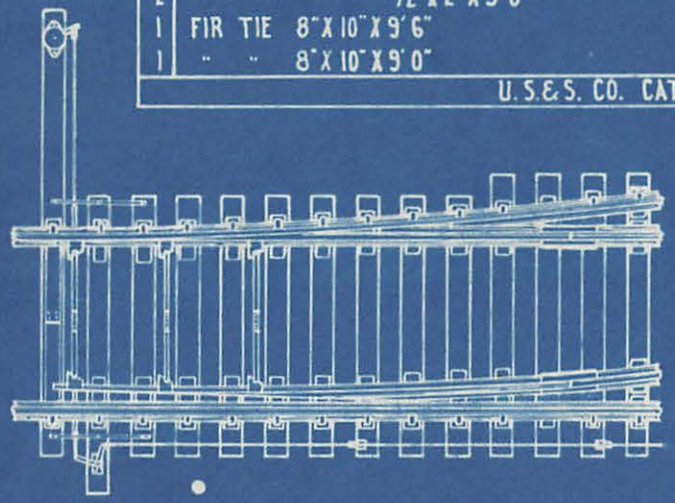
Scale 3/32" = 1 ft.

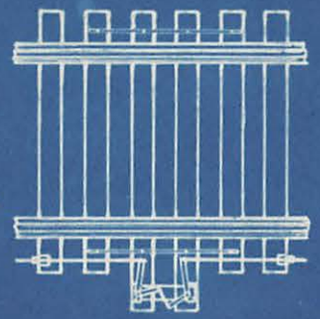
A-554

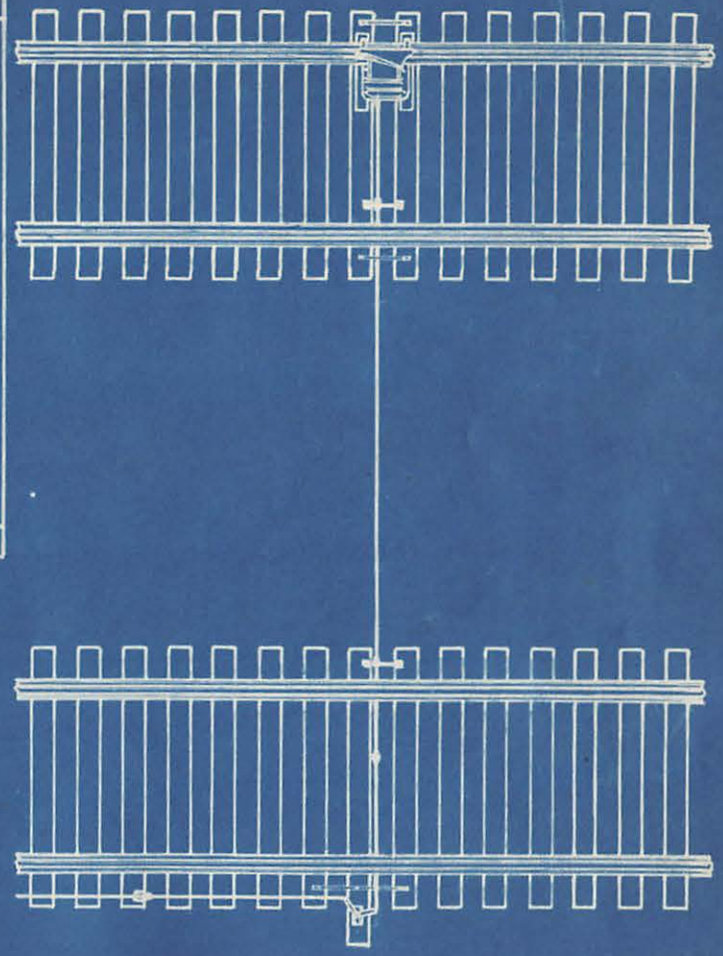
## BILL OF MATERIAL

| | | | |
|---|---|---|---|
| 1 | HAYES CO. DERAIL, MODEL C-5 | 2 | FIR TIES 7"X9"X9'6" |
| 30 | PIPE RIVETS, PLATE C-5 FIG. 64 a | 8 | MACHINE BOLTS & NUTS 3/4"X10" |
| 2 | ONE WAY HORIZONTAL CRANKS 9"X9", PLATE C-9 FIG. D | 4 | " " " 3/4"X9" |
| 1 | " " COMPENSATOR, PLATE C-12 FIG. Cd | 25 | LAG SCREWS 3/4"X4" |
| 2 | " " TRANS. PIPE CARRIERS, PLATE C-21 FIG. Aa | 60 | " " 1/2"X2 1/2" |
| 30 | " " WROUGHT PIPE CARRIERS, PLATE C-20 FIG. Ga | 12 | CUT WASHERS 3/4" |
| 3 | SCREW JAWS, 1 1/4" PLATE C-2 FIG.E | 12 | CAST " 3/4" |
| 4 | SOLID JAWS, 1 1/4" PLATE C-1 FIG.E | | |
| 1 | ADJUSTABLE LINK, PLATE C-2 FIG.K | | |
| 1 | PIPE LINE INSULATION, R.S.A. DWG. 1094 | | |
| 275 | BLACK IRON PIPE, PLATE C-5 FIG.D (FEET) | | |
| 3 | PCS. FLAT IRON 1/2"X2"X4'0" | | |
| 2 | " " " 1/2"X2"X6'6" | | |
| 2 | " " " 1/2"X2"X3'0" | | |
| 1 | FIR TIE 8"X10"X9'6" | | |
| 1 | " " 8"X10"X9'0" | | |

U.S.&S. CO. CATALOG REFERENCE EXCEPT WHERE OTHERWISE SPECIFIED







# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

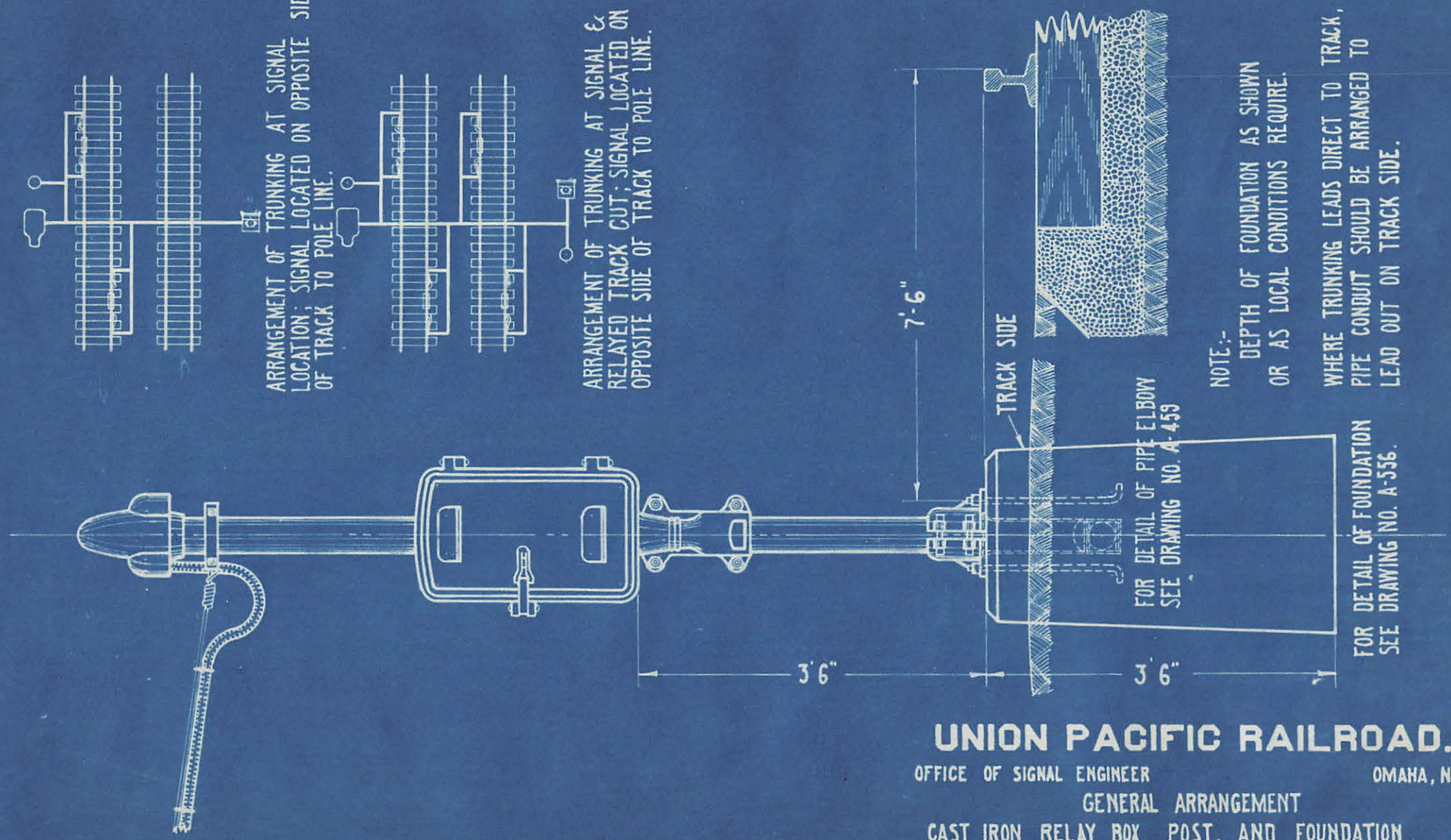
## STANDARD
## HAYES DERAIL ON SIDE TRACK, OPERATED FROM MAIN LINE SWITCH STAND

NOT TO SCALE — MAR. 19, 1920

SUPERSEDES A-1851 DRAWN BY E.W. CHECKED BY _____ APPROVED _____

REVISED NOV. 23. 1919.

A-555


ARRANGEMENT OF TRUNKING AT SIGNAL LOCATION; SIGNAL LOCATED ON OPPOSITE SIDE OF TRACK TO POLE LINE.
ARRANGEMENT OF TRUNKING AT SIGNAL & RELAYED TRACK CUT; SIGNAL LOCATED ON OPPOSITE SIDE OF TRACK TO POLE LINE.
7'-6"
TRACK SIDE
FOR DETAIL OF PIPE ELBOW SEE DRAWING NO. A-459
3'6"
3'6"
FOR DETAIL OF FOUNDATION SEE DRAWING NO. A-556.
NOTE:-
DEPTH OF FOUNDATION AS SHOWN OR AS LOCAL CONDITIONS REQUIRE.
WHERE TRUNKING LEADS DIRECT TO TRACK, PIPE CONDUIT SHOULD BE ARRANGED TO LEAD OUT ON TRACK SIDE.

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

GENERAL ARRANGEMENT

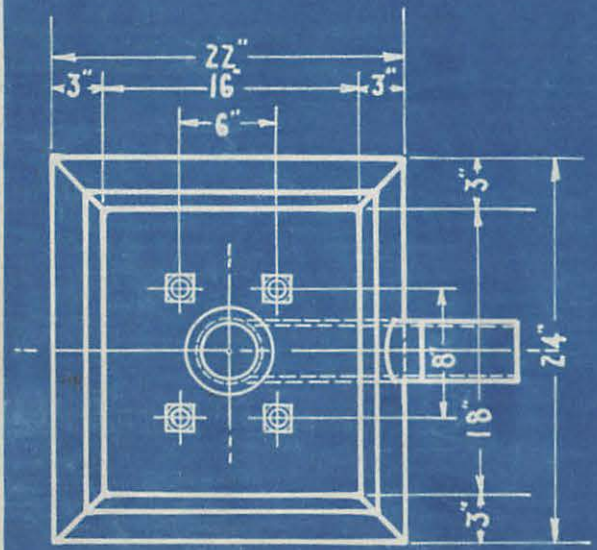
CAST IRON RELAY BOX, POST, AND FOUNDATION.

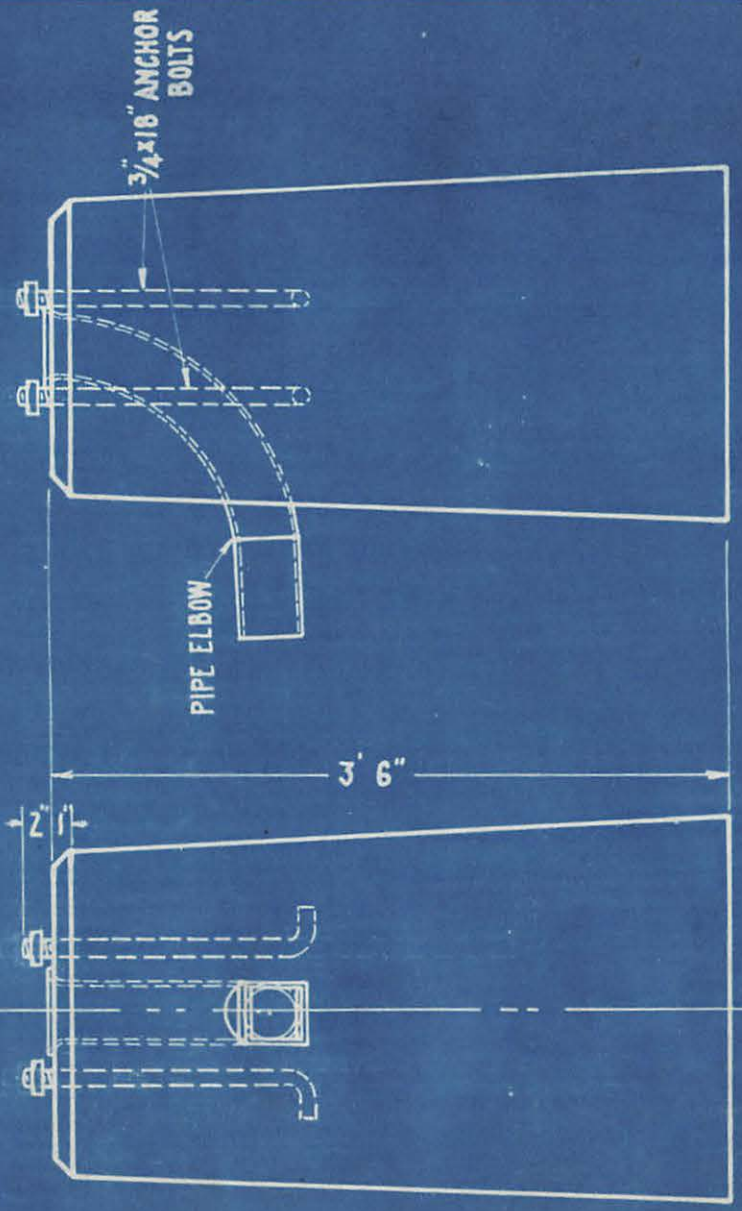
SCALE 3/4" = 1Ft. — NOV. 25, 1919.

DRAWN BY E.W. CHECKED BY R.O.F. APPROVED F. W. Pflaging

Revised Nov. 6, 1919.

A-556




NOTE:- FOR DETAIL OF PIPE ELBOW SEE DRAWING A-459.
FOR GENERAL ARRANGEMENT OF CAST IRON RELAY BOX, POST, & FOUNDATION, SEE DRG. NO. 555.

# UNION PACIFIC RAILROAD.

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

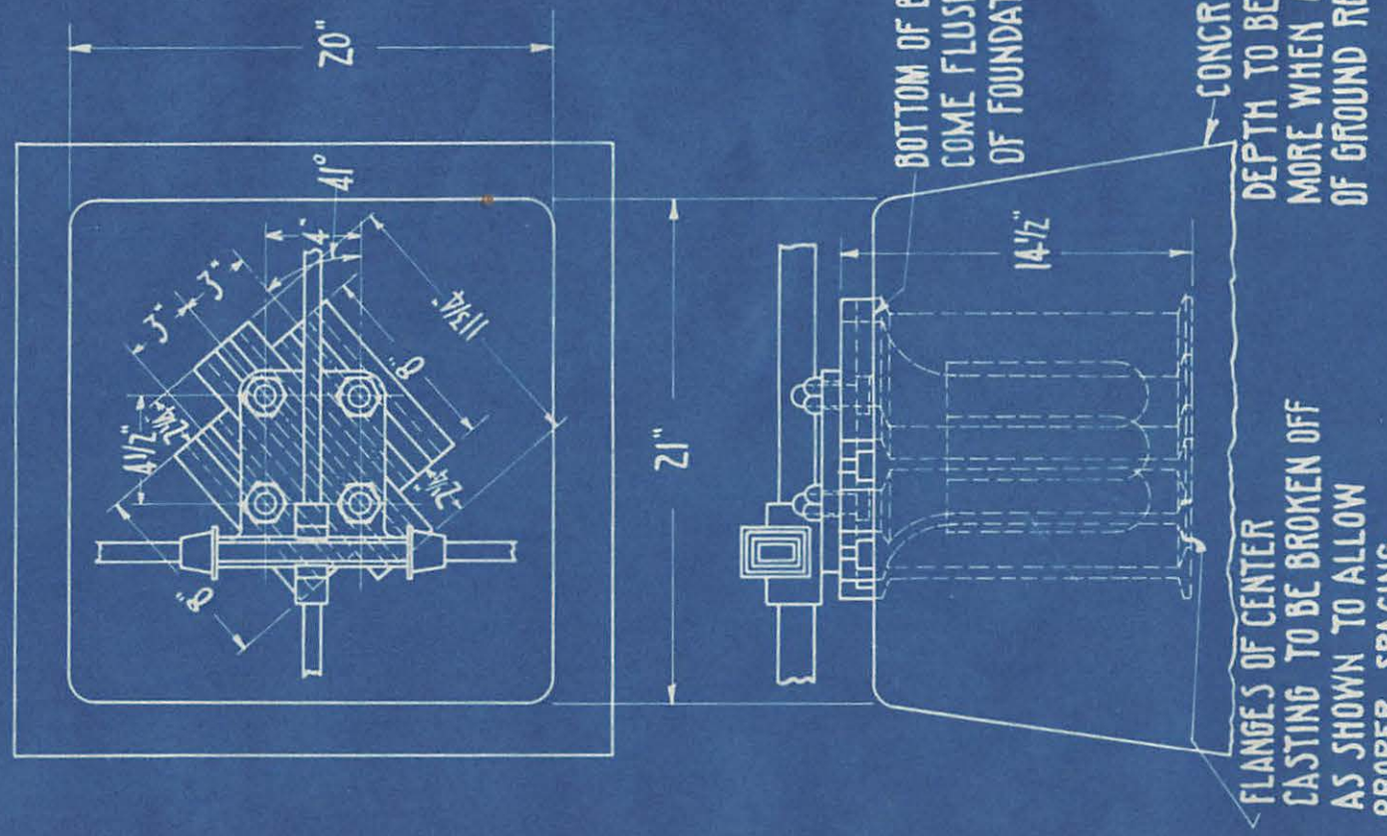
## STANDARD

## CONCRETE FOUNDATION FOR CABLE POST

SCALE 1"=1Ft. — NOV. 6, 1919.

DRAWN BY E.W. CHECKED BY R.A.T. APPROVED F.W. Sleeper

A-557




# UNION PACIFIC RAILROAD

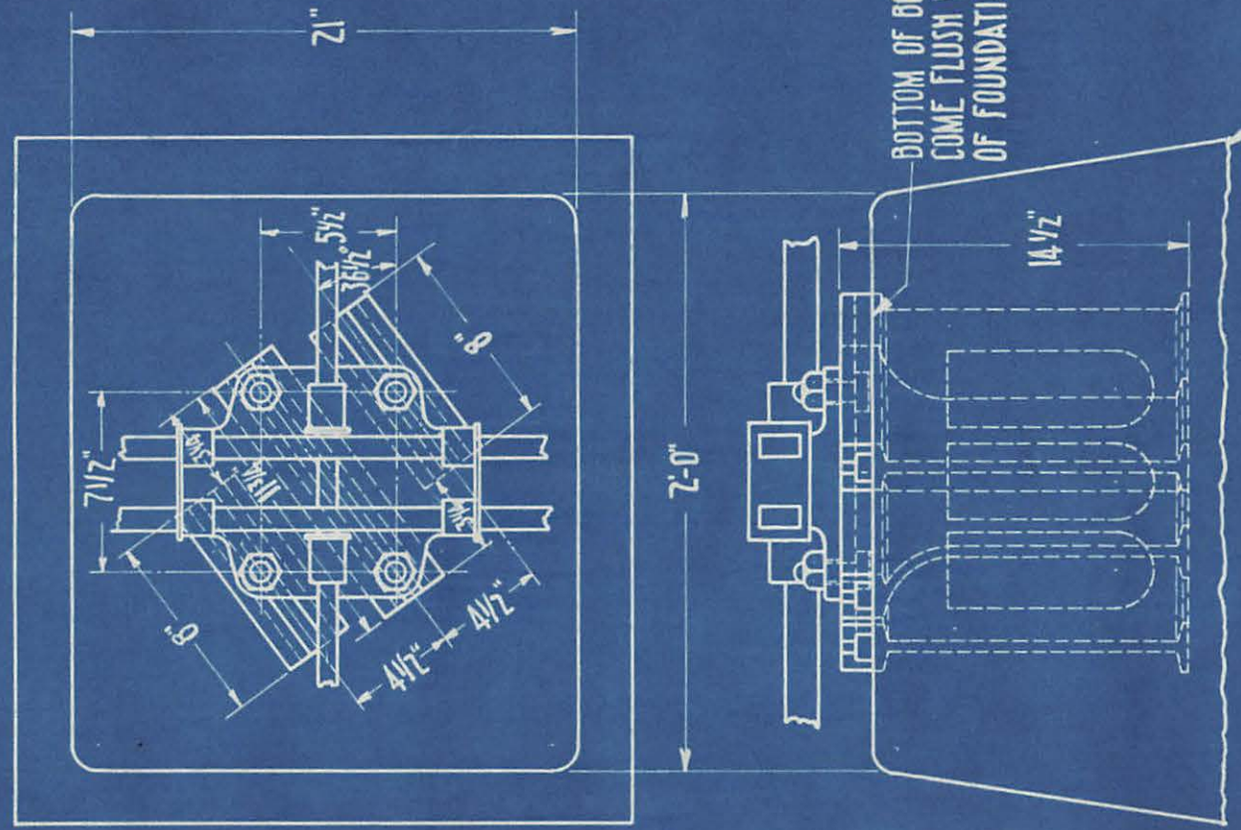
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD
## FOUNDATION FOR ONE-WAY PIPE BOLT LOCKS

SCALE 1½" = 1 FT. — JUNE 16, 1919

DRAWN BY FAB. CHECKED BY RAL APPROVED F. W. Pflegung

A-557




# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

## STANDARD
## FOUNDATION FOR TWO-WAY PIPE BOLT LOCKS

SCALE 1½" = 1 FT. — JUNE 16, 1919

DRAWN BY RAB. CHECKED BY RAG. APPROVED F. W. Fleming

A-558

# COLOR SCHEME

TO BE USED WHEN MAKING CHANGES ON BLUE PRINTS

| | |
|---|---|
| **YELLOW** | ADDITIONAL NEW CONSTRUCTION. |
| **CADMIUM YELLOW** | PRESENT CONSTRUCTION TO BE MOVED. |
| **BLUE DASH** | " " TO COME OUT. |
| **PINK** | CONSTRUCTION FOREIGN TO PURPOSE OF PLANS. |

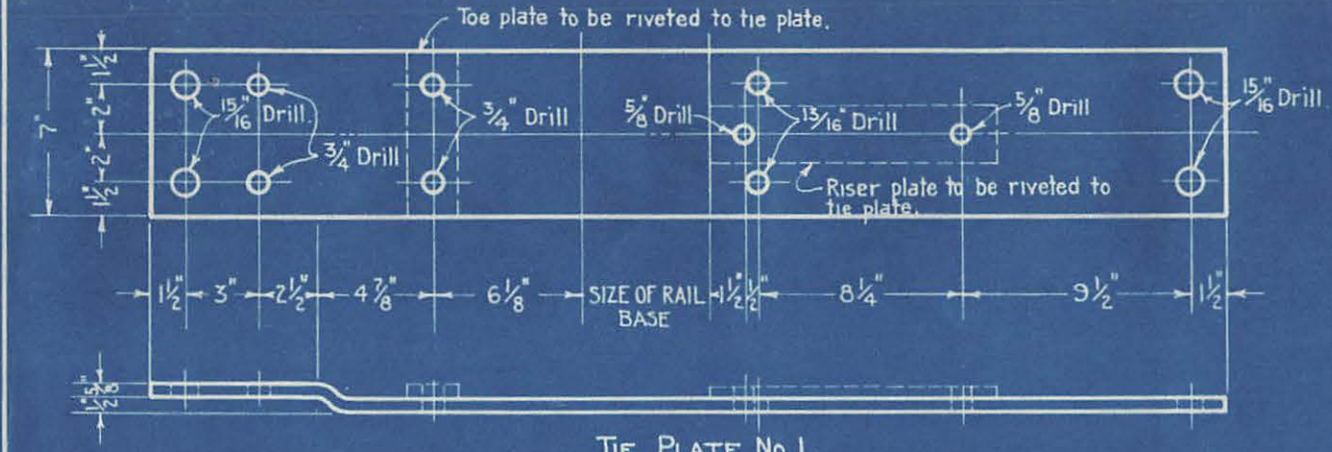
Revised - Oct. 17, 1918.

Drawn by M.C.S.
Checked by R.A.F.
Approved E.W. Pfleging Sept. 13 1918

UNION PACIFIC RAILROAD
Office of Signal Engineer

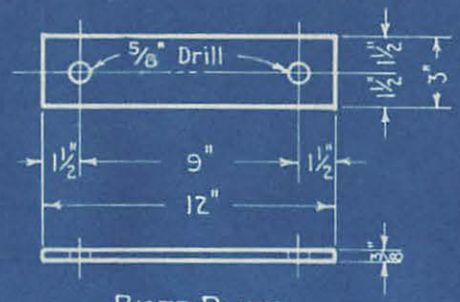
STANDARD
COLOR SCHEME
FOR BLUE PRINTS

A 559



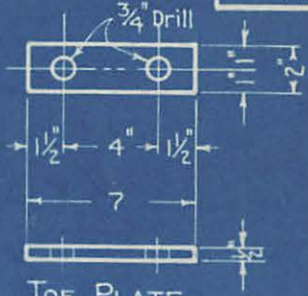

TIE PLATE No. 1

1 REQUIRED FOR EACH SWITCH (ELECTRICALLY OPERATED.)



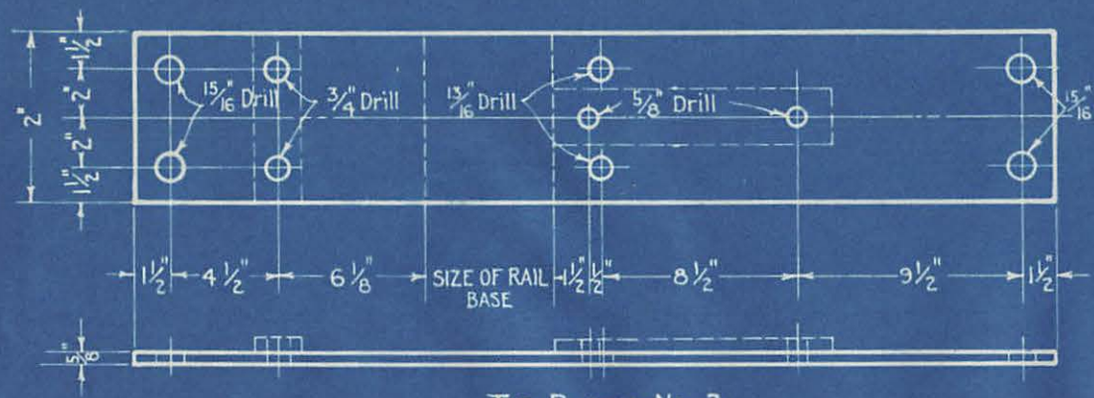

RISER PLATE

4 REQUIRED FOR EACH SWITCH



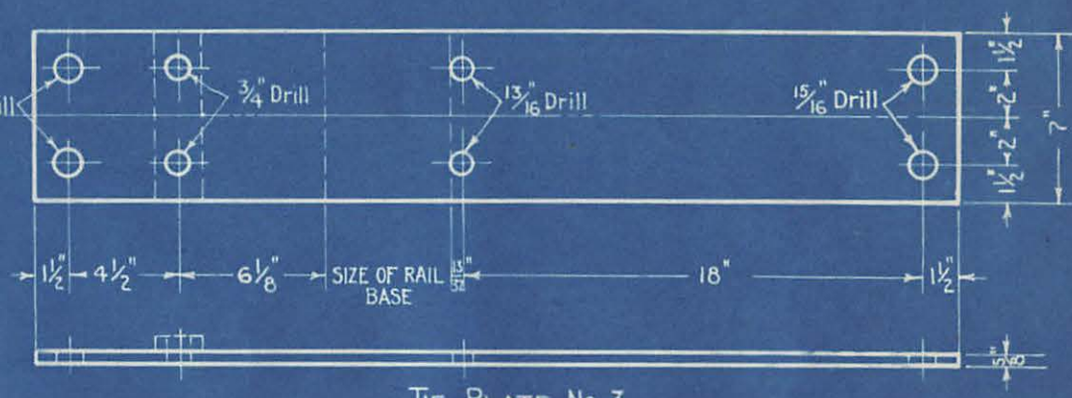

TOE PLATE

6 REQUIRED FOR EACH SWITCH




TIE PLATE No. 2

3 REQUIRED FOR EACH SWITCH (ELECTRICALLY OPERATED)




TIE PLATE No. 3

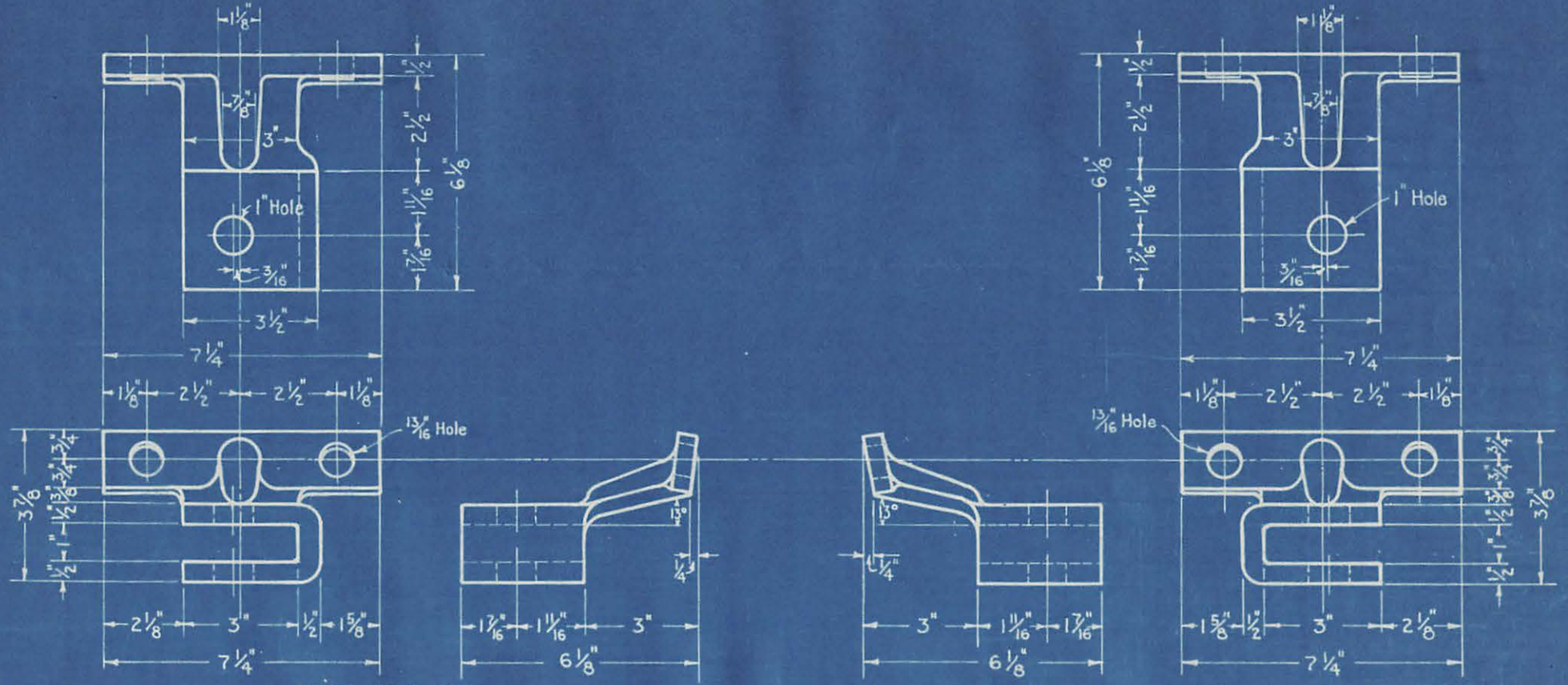
2 REQUIRED FOR EACH SWITCH.

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by R.A.F.
Approved F.W.O.
Jan. 30 1918

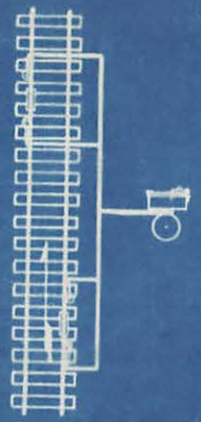
DETAIL OF TIE PLATES
FOR INTERLOCKED SWITCHES
Scale 3" = 1 ft.

A-560



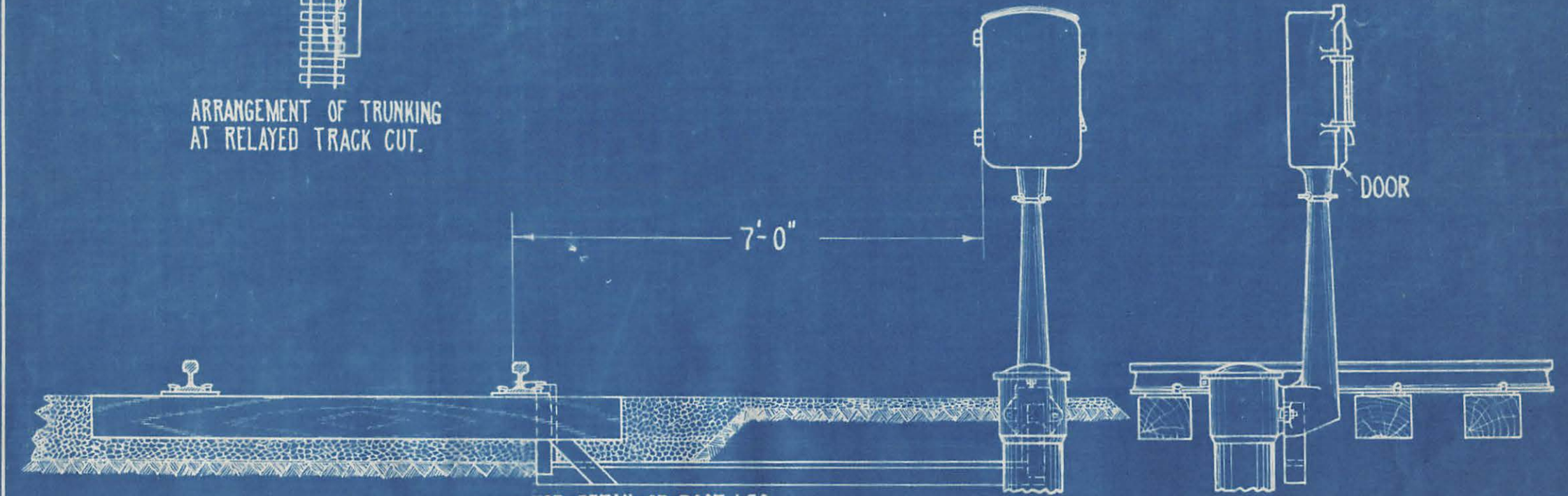

| | |
|---|---|
| | UNION PACIFIC RAILROAD COMPANY.<br>Office of Signal Engineer. |
| Drawn by R.A.F.<br>Checked by Ray<br>Approved F. of O.<br>Jan. 30, 1918. | LUCAS TIE BAR CLIPS<br>Scale 3"=1 ft. |

A-561



ARRANGEMENT OF TRUNKING
AT RELAYED TRACK CUT.

DIRECTION OF TRAFFIC →
ON DOUBLE TRACK




FOR DETAIL OF BOOT LEG
CONSTRUCTION SEE DRAWING NO. A-402

# UNION PACIFIC RAILROAD.

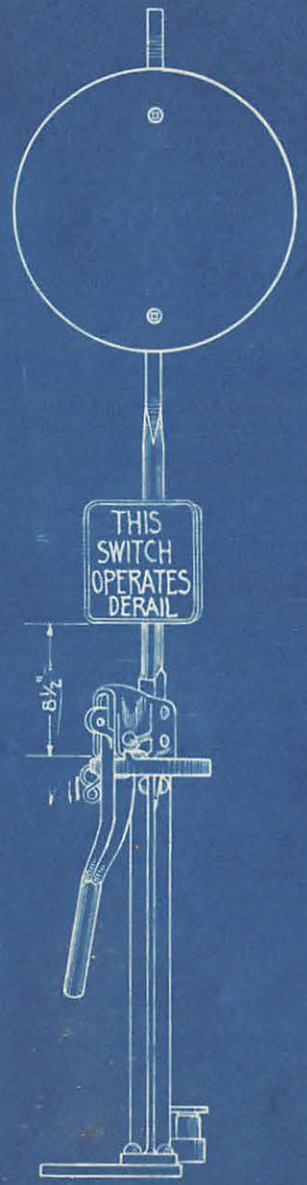
OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

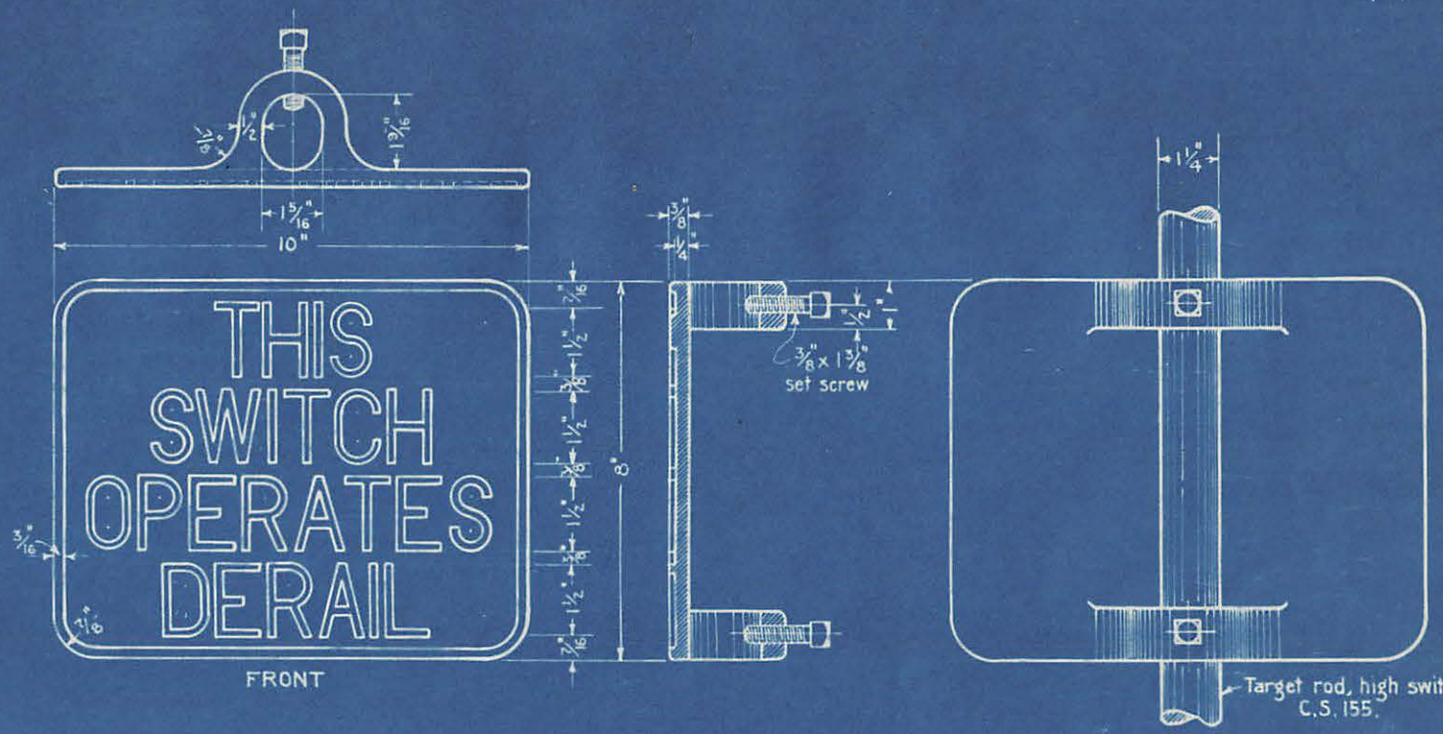
## GENERAL ARRANGEMENT
## OF CAST IRON RELAY BOX AND BATTERY CHUTE POST.

SCALE 1½ = 1 FT. — NOV. 6 1919

DRAWN BY RAF CHECKED BY RAF APPROVED F. W. Pflegner

A-562




FRONT

BACK

NOTE: Material, cast iron.
Paint entire sign white, face of letters black.
Sign to be placed on target rod so it will face operator.
This sign for use on main track switch stand where derail is pipe connected.

Revised Feb. 5, 1918.

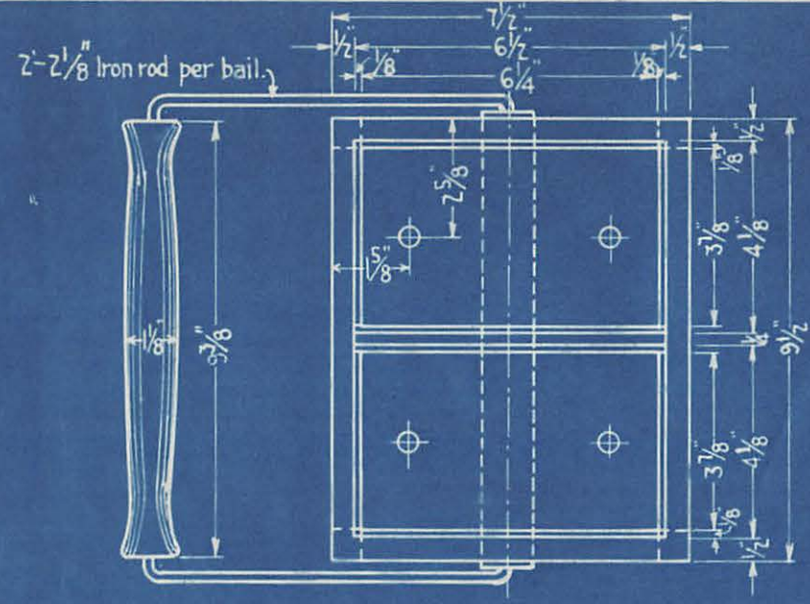
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by R.A.F.
Approved F.W. Pfleging
Jan. 31, 1918.

DERAIL SWITCH SIGN
FOR PIPE CONNECTED DERAIL.

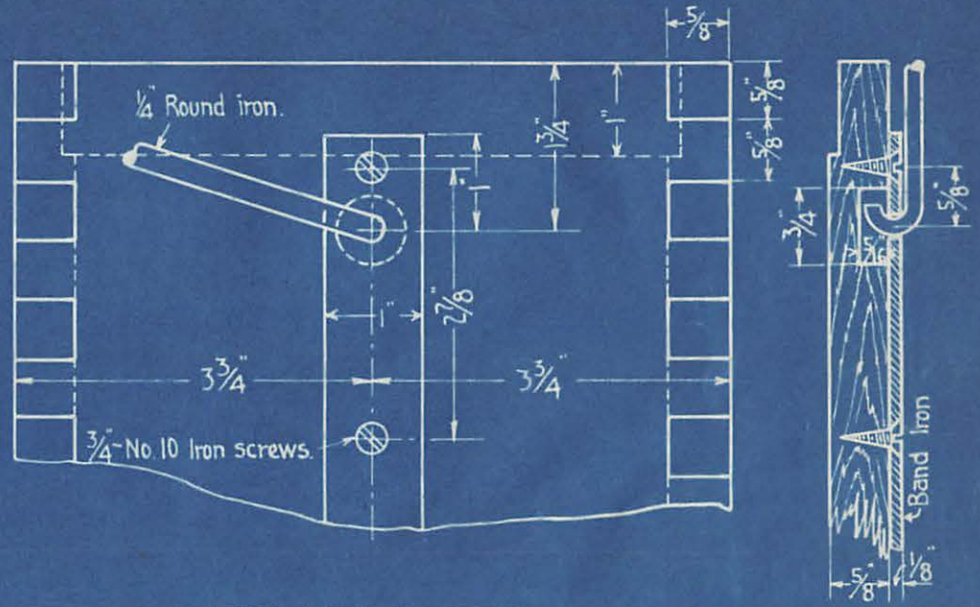
NO SCALE.

A-563

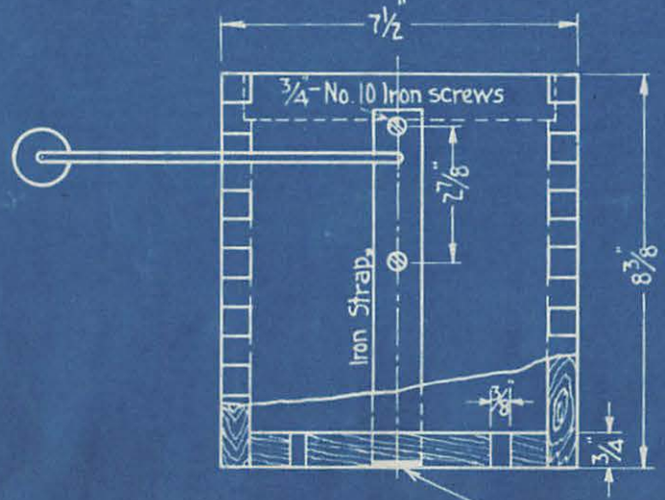



TOP VIEW
Scale 3"=1Ft.

FILLER
Scale 3"=1Ft.




DETAIL OF BAIL FASTENING
Scale Half size.




END VIEW
Scale 3"=1Ft.

Iron strap must be countersunk in bottom as shown and cross grain.

Note:-

Use dry sugar pine or No. 1 cedar for case and filler.
Use select ash for handle.
Case and filler to be dipped in asphaltum after assembling.
Bail fastenings and strap, to be put in place before case has been dipped in asphaltum.
Bottom to be nailed in and corners mortised as shown.
Bend one band iron strap 24 3/4" × 1" × 1/8" and countersink
2 holes in each end as shown.

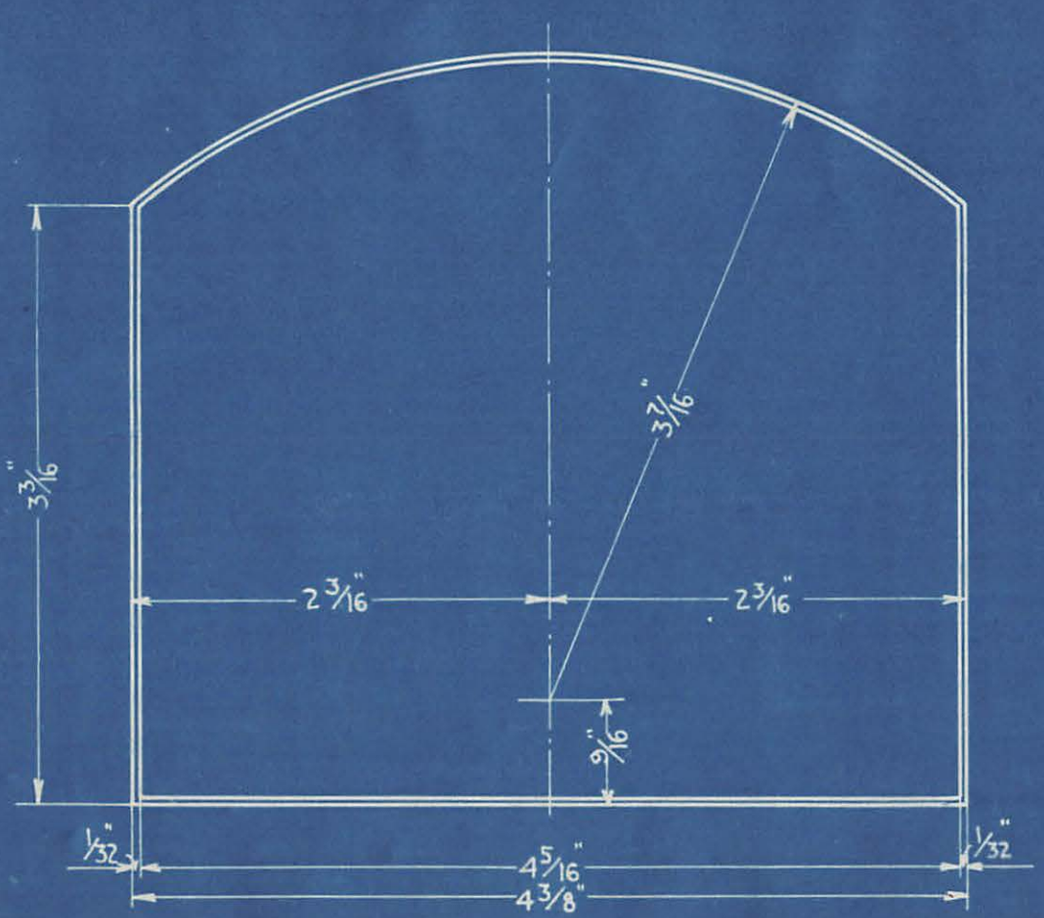
Revised July 29, 1919.

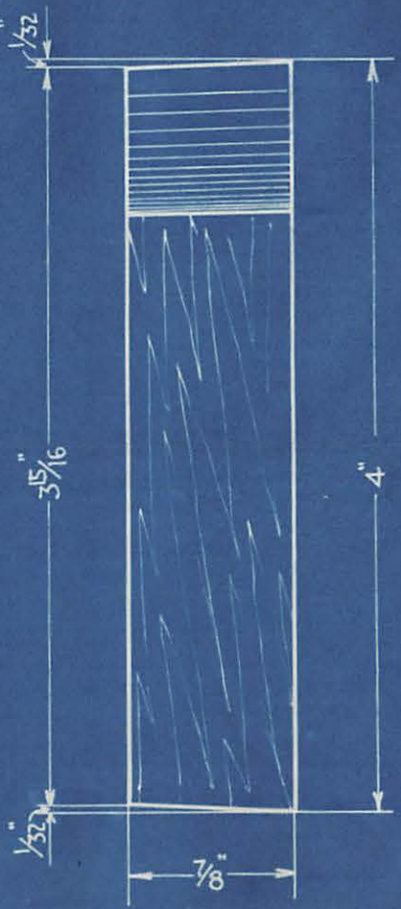
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by E.W.A.
Checked by R.A.F.
Approved E.W.P. March 20, 1918.

STANDARD
BATTERY CASE
FOR 2-7 KXS. 80 AMP. HOUR STORAGE CELLS.
Scale as noted.

A-564



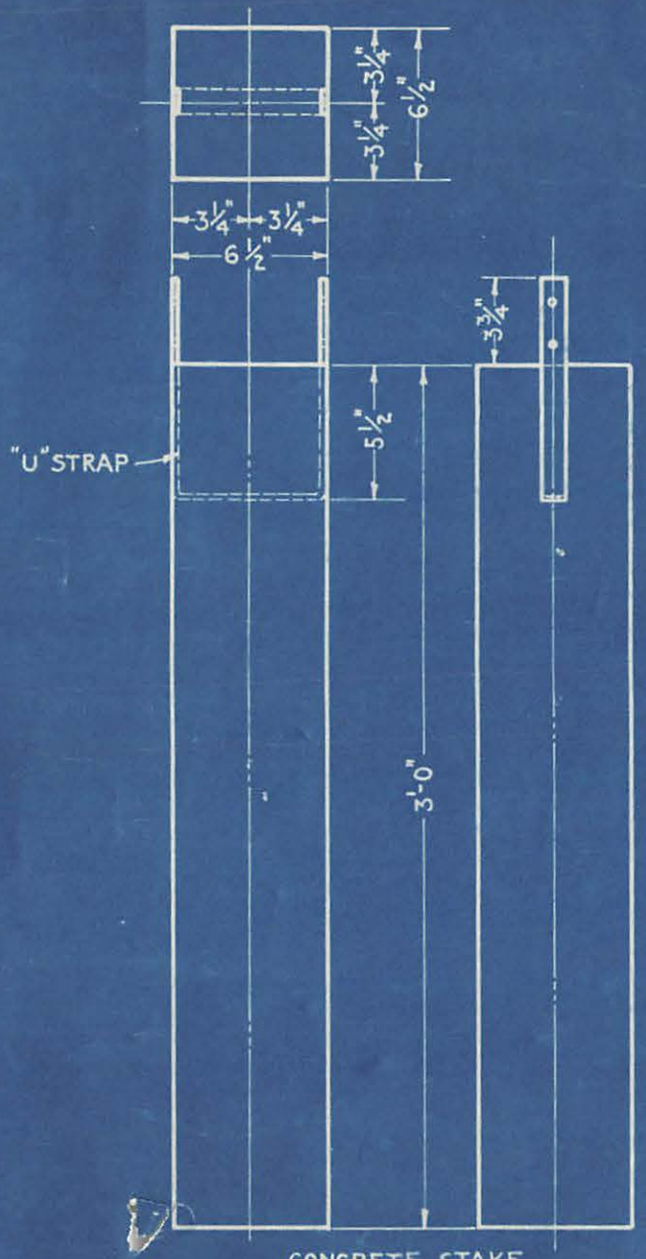

Note:-
Material: Ash
Paint one coat with
black asphaltum

UNION PACIFIC RAILROAD COMPANY
Office of Signal Engineer.

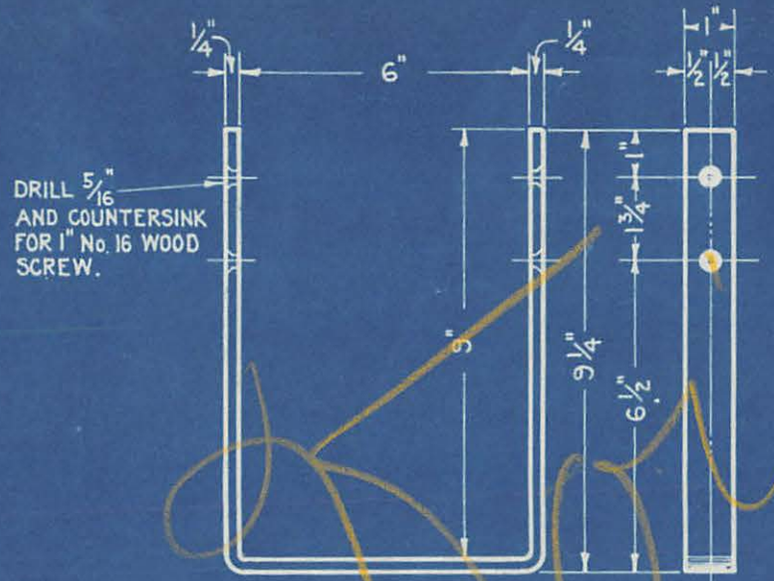
Drawn by E.W.A.
Checked by R Gft
Approved Fuller
May 23, 1918.

STANDARD
BLOCK FOR WIRE OUTLET
USED IN VERTICAL ROTARY SWITCH BOX

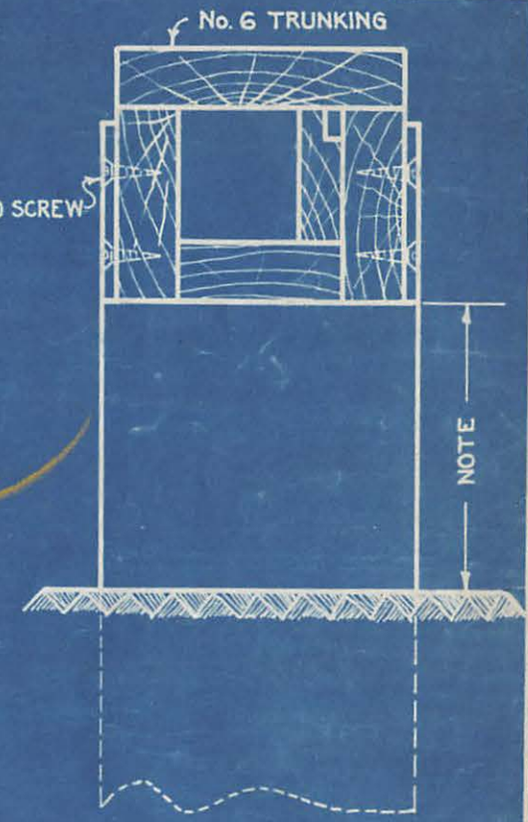
A-565




CONCRETE STAKE
Scale 1½" = 1 Ft.




"U" STRAP
Material ¼"x1" Strap Iron Scale 3" = 1 Ft.




METHOD OF FASTENING TRUNKING TO CONCRETE STAKE.
Scale 3" = 1 Ft.

NOTE:
TO BE DETERMINED BY LOCAL CONDITIONS.

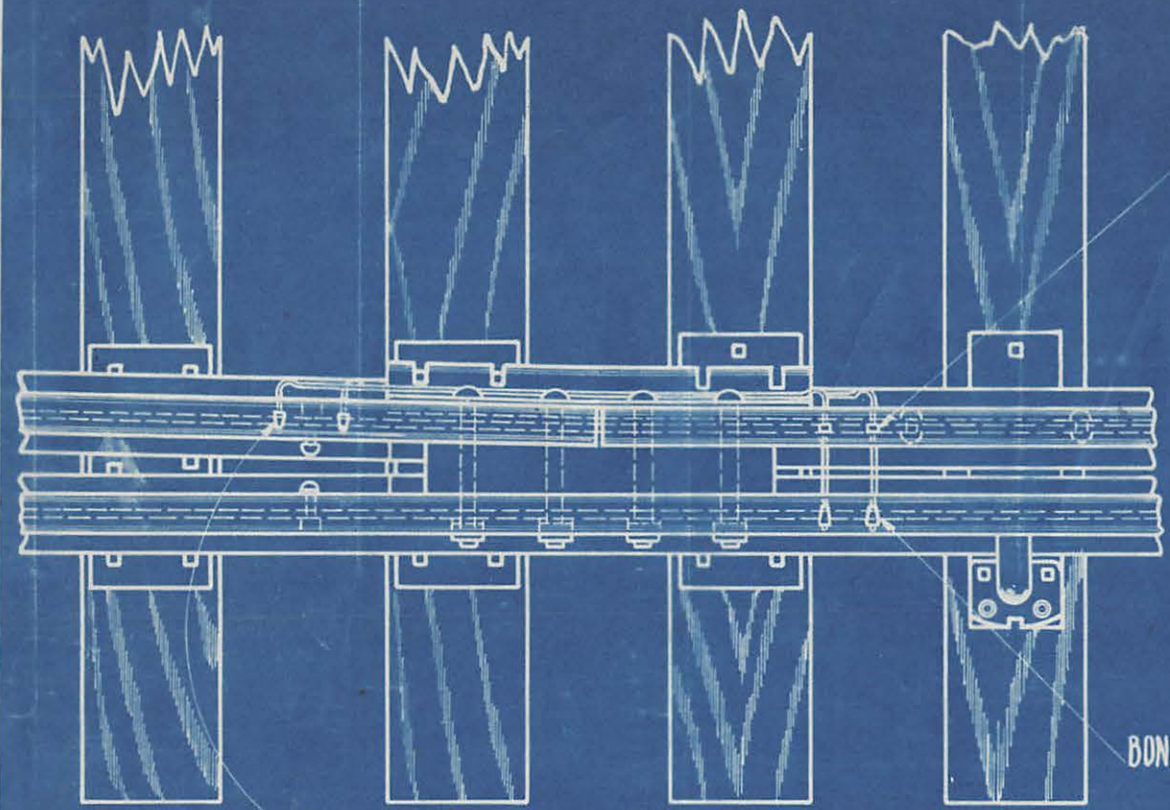
UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

Drawn by R.A.F.
Checked by L.D.D.
Approved F.H.P.
July 11, 1918.

STANDARD
CONCRETE TRUNKING STAKE FOR NO. 6 TRUNKING

Scale as Noted.

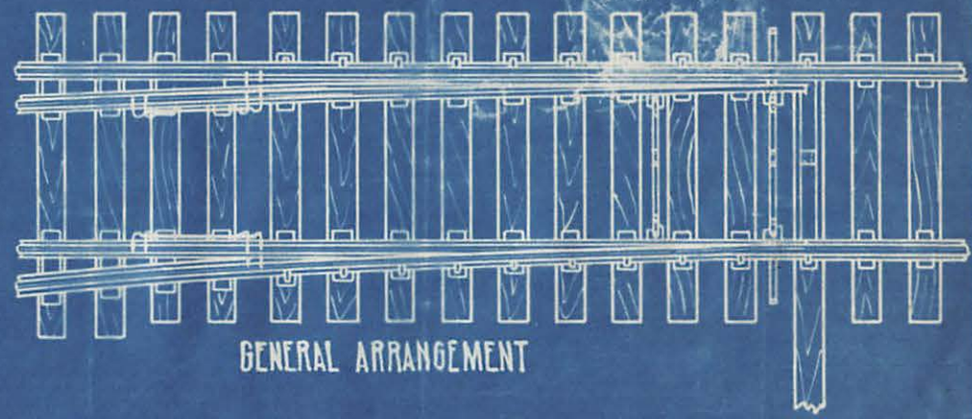
A-566



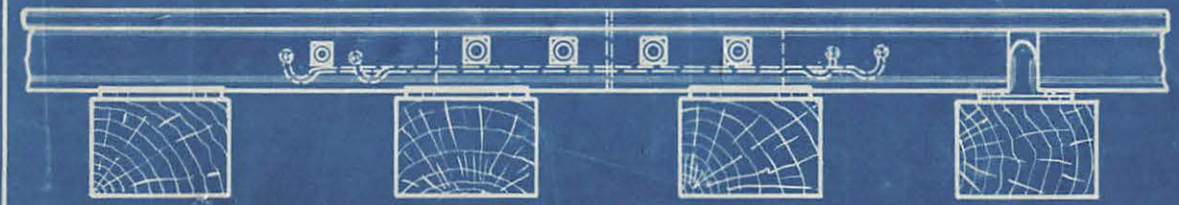
BOND WIRES FASTENED TO THIS WEB WITH CHANNEL PINS.

DRILL 9/32" HOLE THRU WEB FOR BOND WIRES TO SLIDE THRU.

BOND WIRES FASTENED TO THIS WEB WITH CHANNEL PINS



GENERAL ARRANGEMENT



HEEL JOINT

# UNION PACIFIC RAILROAD

OFFICE OF SIGNAL ENGINEER — OMAHA, NEBR.

STANDARD

BONDING AT HEEL JOINT

SCALE 1" = 1 FT. — MARCH 20, 1919

DRAWN BY R.A.B. CHECKED BY R.A. APPROVED F.H.P.

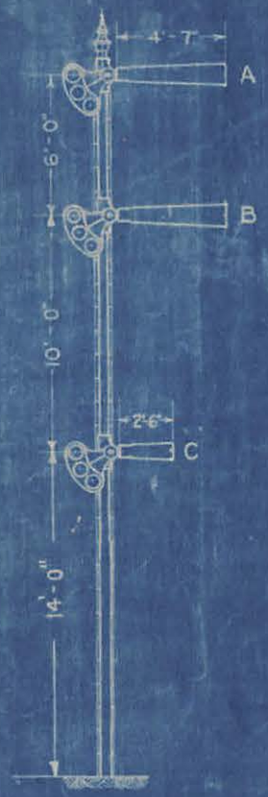



FIG. 1.

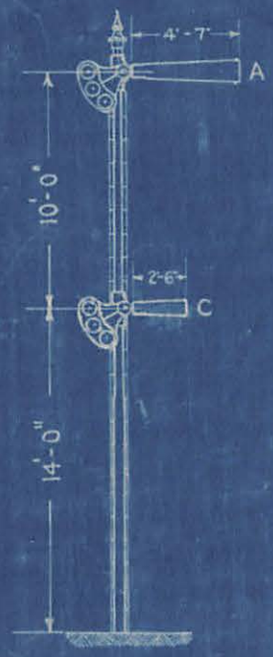



FIG. 2.

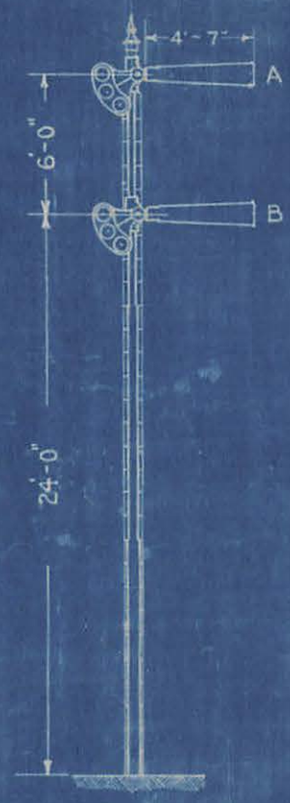



FIG. 3.

## EXPLANATION

It has been customary heretofore to use the arm "B" of a signal similar to Figure 3 to govern all routes except the main line. This is objectionable because it does not indicate to an engineman the speed at which he may proceed. In some instances a dwarf signal has been installed at the base of the post to serve the same purpose as arm "C" but such a signal is difficult to see.

## MEANING OF THE VARIOUS ARMS

Arm "A" will be cleared when switches are set for the high speed route.

Arm "B" will be cleared when switches are set for a moderately high speed route such as the diverging line at a junction.

Arm "C" will be cleared when switches are set for a slow speed route such as a movement through a crossover or onto a siding.

Note :-

Where there is no moderate speed route arm "B" will be omitted as in Fig 2.
Where there is no slow speed route arm "C" will be omitted as in Fig. 3.
Where there is only one route a one-arm signal will be used.

REVISED MARCH 1 1921.

Supersedes A1006

UNION PACIFIC RAILROAD COMPANY.
Office of Signal Engineer.

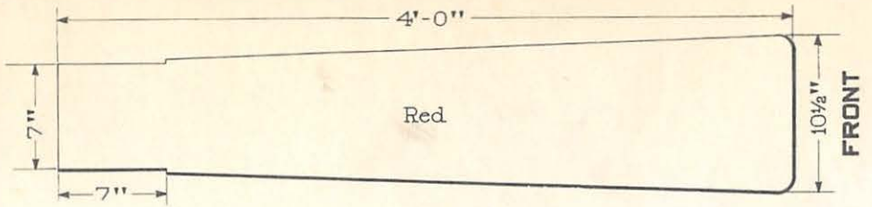
Drawn by C.A.A.
Checked by E.D.D.
Approved [signature]
July 9, 1909.

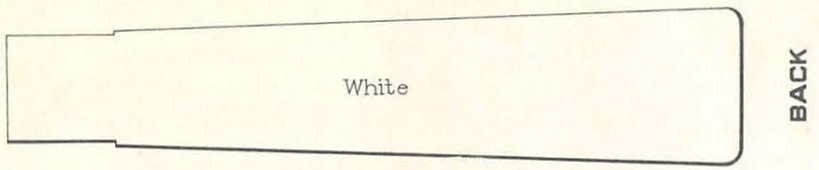
PROPOSED TYPES OF ROUTE SIGNALS
FOR INTERLOCKING PLANTS.

Scale $\frac{1}{8}$" = 1 ft.

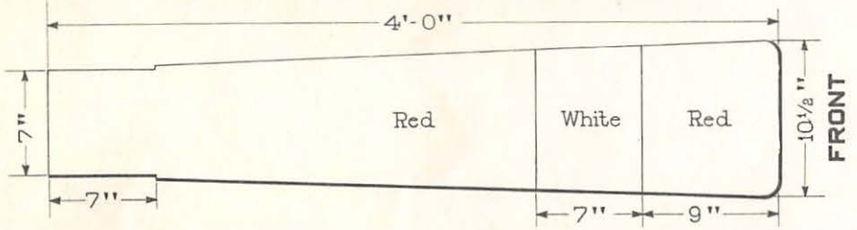
Drawing No. A-1036.

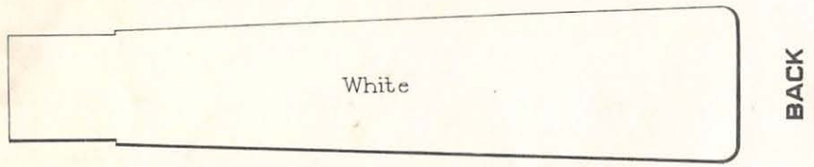
C.S. 61



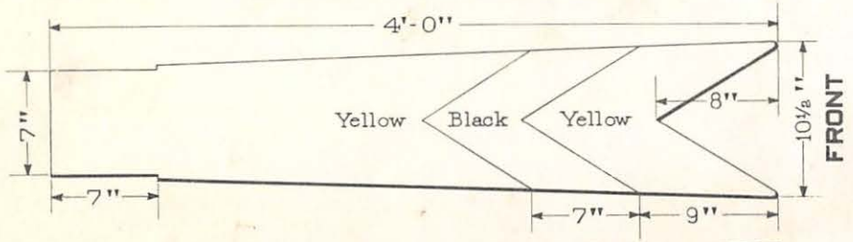



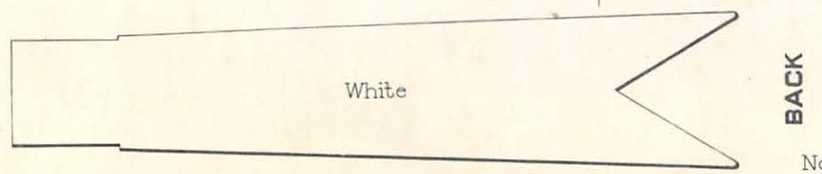

STATION OR INTERLOCKING HOME BLADE



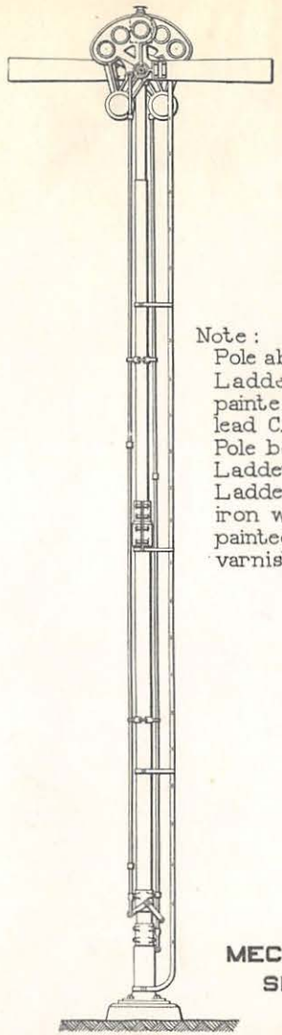




AUTOMATIC HOME BLADE



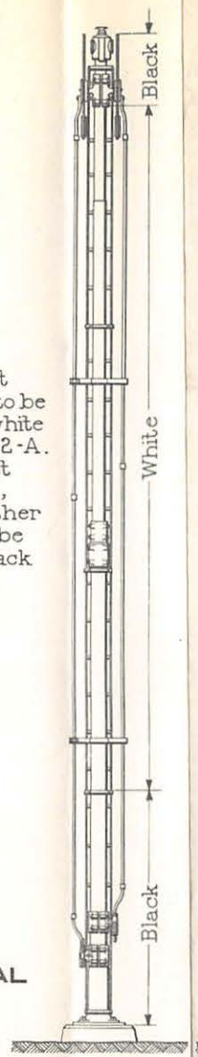



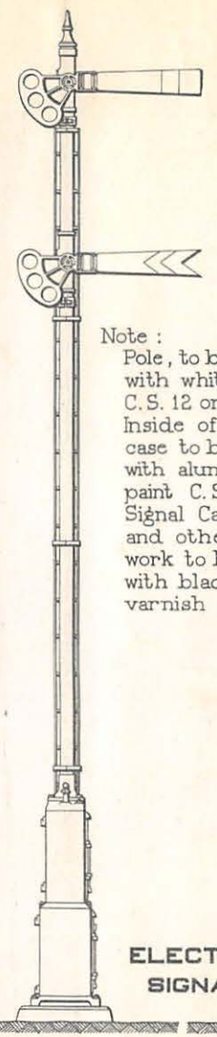

AUTOMATIC OR INTERLOCKING DISTANT BLADE



Note :
Pole above first Ladder brace to be painted with white lead C.S. 12 or 12-A. Pole below first Ladder brace, Ladder and other iron work to be painted with black varnish C.S. 7.

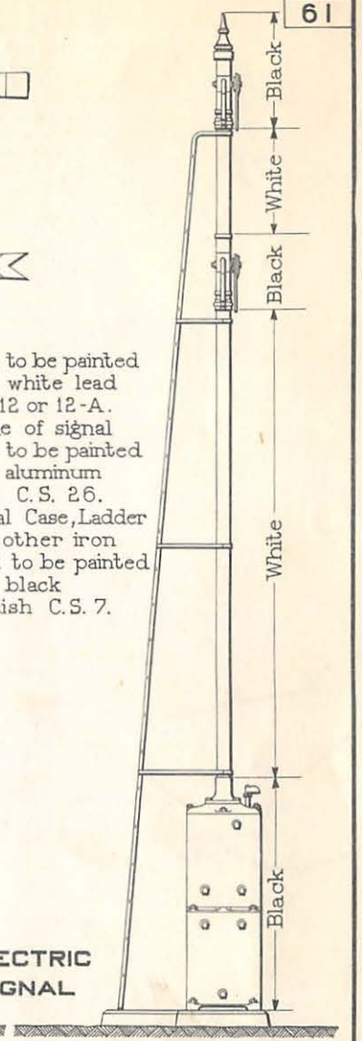
MECHANICAL SIGNAL



Note :
Pole, to be painted with white lead C.S. 12 or 12-A. Inside of signal case to be painted with aluminum paint C.S. 26. Signal Case, Ladder and other iron work to be painted with black varnish C.S. 7.

ELECTRIC SIGNAL




Painting of Blades.
Red - Semaphore Vermillion C.S. 205.
Yellow - Semaphore Yellow C.S. 206.
White - White Enamel C.S. 12-B.
Black - Black Varnish C.S. 7.
Wooden blades to be superseded by enameled steel blades (Drawing C.S. 294) when replacement becomes necessary.

Note : Colors to conform to Union Pacific Standard Specifications C.S. 22 for paints.

UNION PACIFIC SYSTEM

# COMMON STANDARD

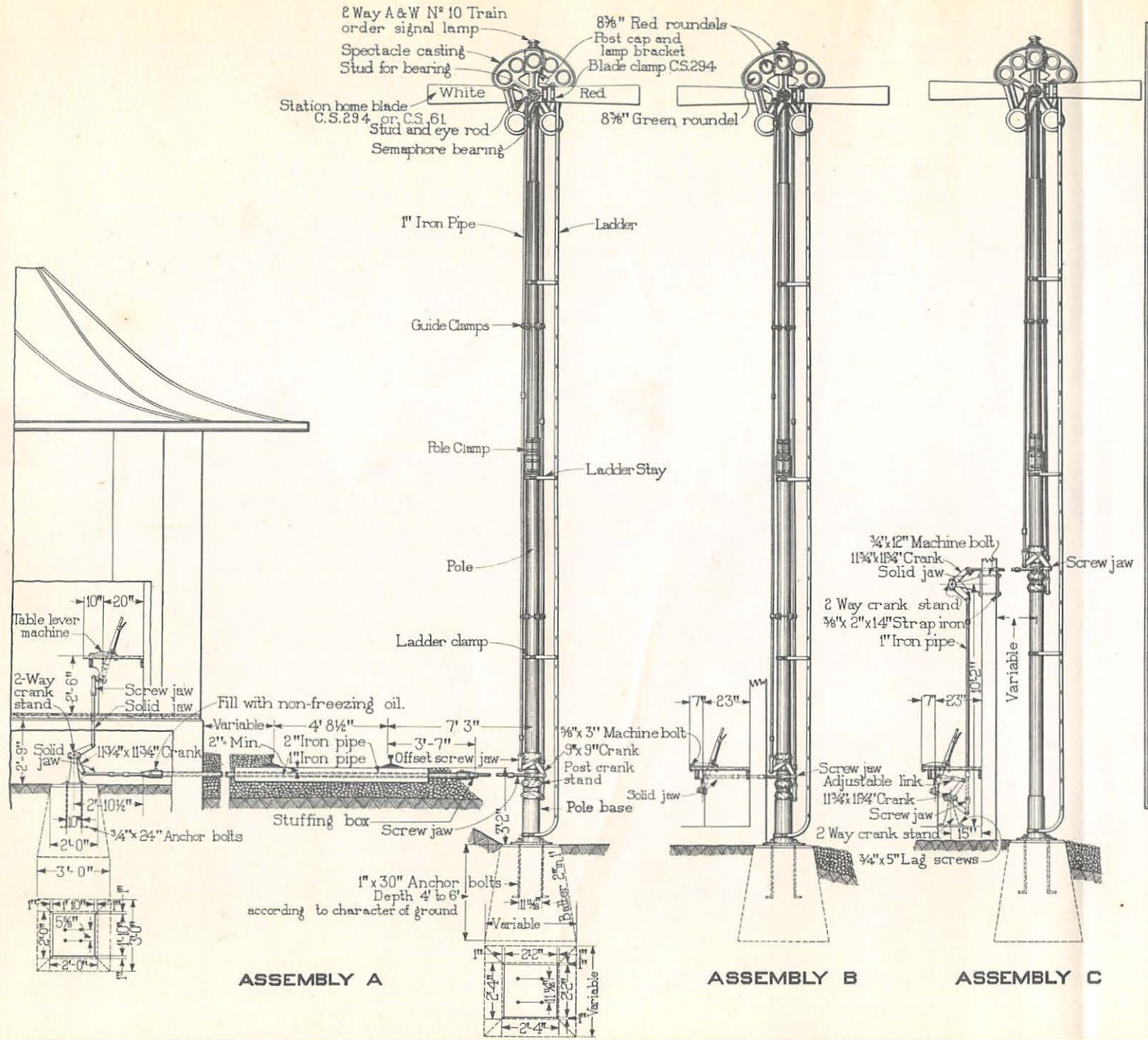
## SIGNALS AND WOODEN SIGNAL BLADES

PAINTING DIAGRAM

NO SCALE A.H.M.

ADOPTED : JANUARY - 12, 1916.
REVISED : AUGUST - 27, 1920.

C. S.
150




## BILL OF MATERIAL

| Article | Reqd A. | Reqd B. | Reqd C. | Remarks |
|---|---|---|---|---|
| Lamp, 2-Way | 1 | 1 | 1 | A&W. Nº 10. T.O. |
| Home blades | 2 | 2 | 2 | C.S. 294. |
| Blade clamps | 4 | 4 | 4 | C.S. 294. |
| Eye rods | 2 | 2 | 2 | RSA.11952 |
| Guide clamps, 5" dia | 1 | 1 | 1 | RSA.102313 |
| Guide clamps, 6" dia | 1 | 1 | 0 | RSA.102315 |
| Post crank stands | 2 | 2 | 2 | RSA.13984 |
| 9"x9" Cranks | 2 | 2 | 2 | RSA.10075 |
| Stuffing boxes | 4 | 0 | 0 | RSA.12257 |
| Screw jaws, straight | 4 | 2 | 4 | RSA.13606 |
| Screw jaws, offset | 2 | 2 | 2 | RSA.13608 |
| Solid jaws & pins | 4 | 2 | 4 | RSA.10181 & 10105 |
| Pole base | 1 | 1 | 1 | RSA.10341 |
| 2-Way crank stand | 1 | 0 | 2 | RSA.10674 |
| Semaphore bearing | 1 | 1 | 1 | C.S.-150A |
| Spectacle casting | 2 | 2 | 2 | C.S.-150A |
| Lamp bracket. | 1 | 1 | 1 | C.S.-150A |
| Post cap | 1 | 1 | 1 | C.S.-150A |
| Mast | 1 | 1 | 1 | C.S.-150A |
| Ladder | 1 | 1 | 1 | C.S.-150A |
| Ladder stays | 6 | 6 | 6 | C.S.-150A |
| Ladder clamps, 4" pipe | 2 | 2 | 2 | C.S.-150A |
| Ladder clamps, 5" pipe | 2 | 2 | 2 | C.S.-150A |
| Ladder clamps, 6" pipe | 4 | 4 | 4 | C.S.-150A |
| Ladder clamps, base | 2 | 2 | 2 | C.S.-150A |
| Pole clamps | 1 | 1 | 1 | C.S.-150A |
| 11" Adjustable link | 0 | 0 | 2 | C.S.-150A |
| Table lever machine | 1 | 1 | 1 | C.S.-150A |
| ⅜"x 2"x 14" Strap iron | 0 | 0 | 2 | RR to furnish |
| Non-freezing oil | Variable | 0 | 0 | RR to furnish |
| Pipe rivets, ¼"x 1⅝" | 50 | 50 | 50 | RR to furnish |
| 1" Iron Pipe | Variable | 80' | 80' | RR to furnish |
| 2" Iron Pipe | Variable | 0 | 0 | RR to furnish |
| 1" x 30" Anchor bolts | 4 | 4 | 4 | RR to furnish |
| ¾"x 24" Anchor bolts | 4 | 0 | 0 | RR to furnish |
| ¾"x 5" Lag screws | 0 | 0 | 4 | RR to furnish |
| 8⅜" Roundels, red | 4 | 4 | 4 | RR to furnish |
| 8⅜" Roundels, green | 2 | 2 | 2 | RR to furnish |
| ⅝"x 3" Mach. bolts & nuts | 4 | 4 | 4 | RR to furnish |
| ¾"x 12" Mach. bolts & nuts | 0 | 0 | 4 | RR to furnish |
| Cement | 10 Sacks | 7 Sacks | 7 Sacks | RR to furnish |
| Sand | 1½ yds. | 1-yd | 1-yd | RR to furnish |
| Crushed rock | 3-yds | 2-yds | 2-yds | RR to furnish |

UNION PACIFIC SYSTEM

# COMMON STANDARD

## STATION SIGNAL

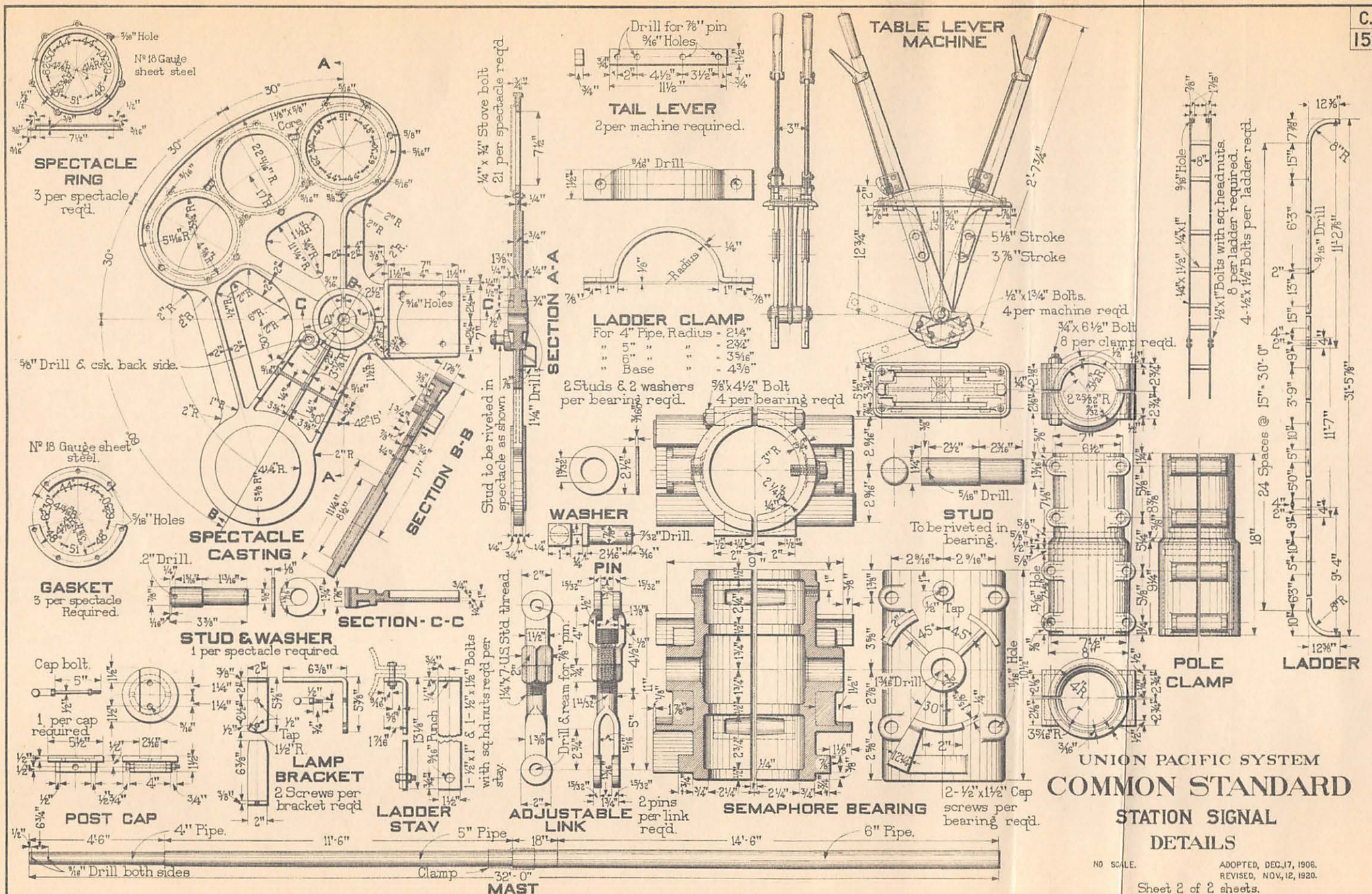
## ASSEMBLY

NO SCALE

ADOPTED DEC. 17, 1906.
REVISED FEB. 7, 1921.

Sheet 1 of 2 sheets

C. S.
150A




UNION PACIFIC SYSTEM

# COMMON STANDARD

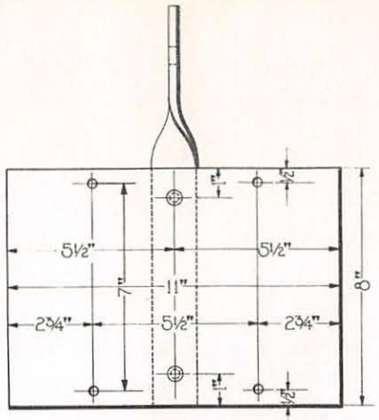
## STATION SIGNAL DETAILS

NO SCALE.

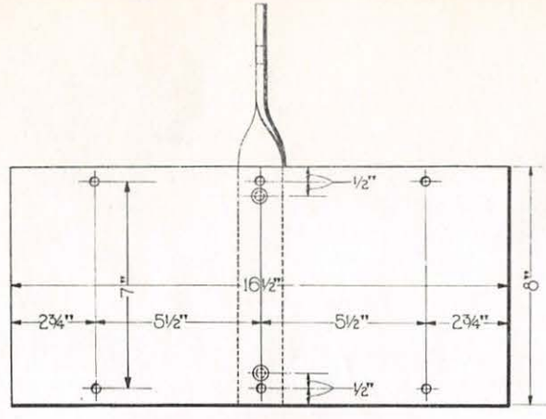
ADOPTED, DEC. 17, 1906.
REVISED, NOV. 12, 1920.

Sheet 2 of 2 sheets.

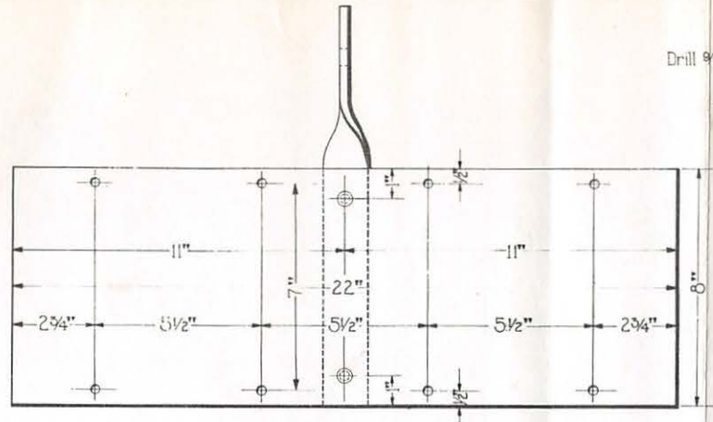
C.S. 247



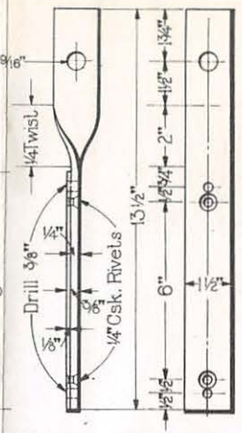

**TWO FIGURE HANGER**
Wrought Iron



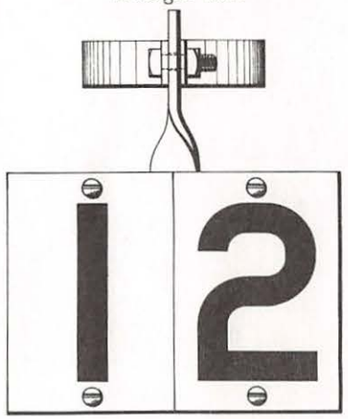

**THREE FIGURE HANGER**
Wrought Iron



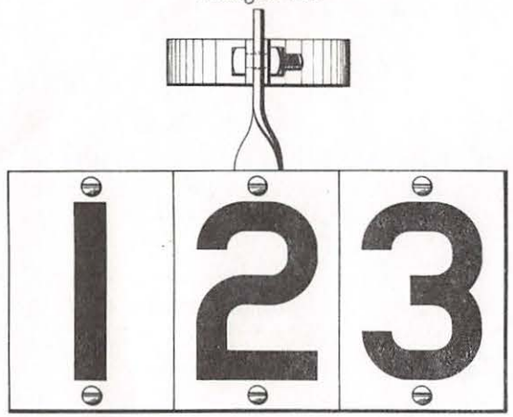

**FOUR FIGURE HANGER**
Wrought Iron



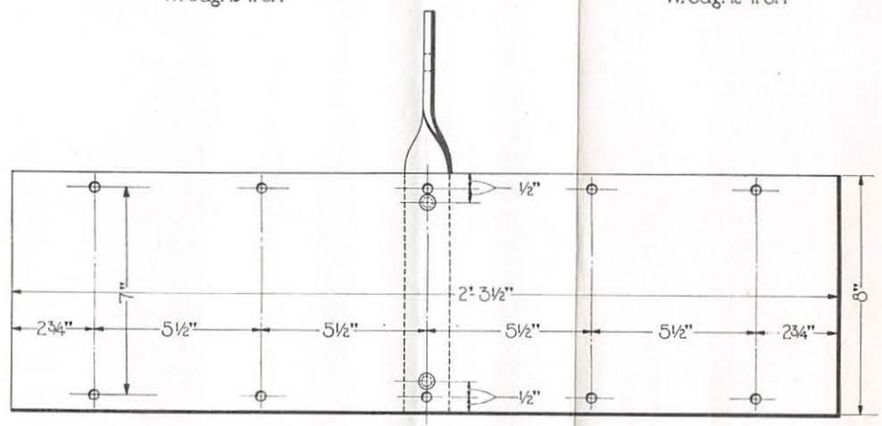

**DETAIL OF SUPPORT**
Wrought Iron



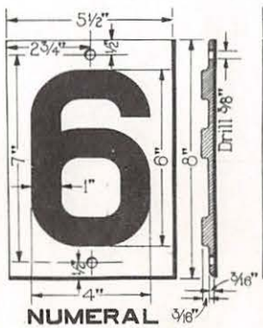

**TWO FIGURE ASSEMBLY**



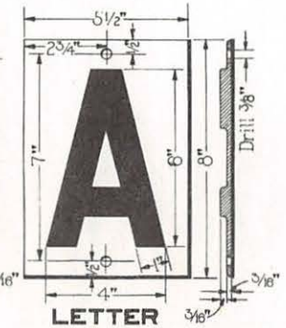

**THREE FIGURE ASSEMBLY**



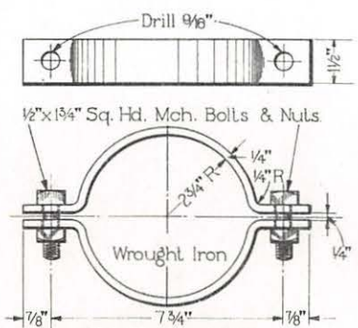

**FIVE FIGURE HANGER**
Wrought Iron




**NUMERAL**
Cast Iron




**LETTER**
Cast Iron




**POLE CLAMP**

**TABLE OF QUANTITIES**

| Items | 2 Fig. | 3 Fig. | 4 Fig. | 5 Fig. |
|---|---|---|---|---|
| Pole Clamp | 1 | 1 | 1 | 1 |
| Hanger | 1 | 1 | 1 | 1 |
| 5/16"-18 Hexagon Brass Nuts | 4 | 6 | 8 | 10 |
| 3/4" No. 20-18 R.H. Brass Screws | 4 | 4 | 8 | 8 |
| 1" No. 20-18 R.H. Brass Screws | – | 2 | – | 2 |
| Numerals and Letters to be furnished as ordered. | | | | |

Note:-
For method of numbering signals see C.S. 357.

Painting:-
Hanger yellow, C.S. 206, except that support above top of plate to be painted black, C.S.-7. Pole clamp black, C.S.-7. Back of numerals and letters, black C.S.-7. Front white, C.S. 12B, with numerals and letters black C.S.-7.

UNION PACIFIC SYSTEM

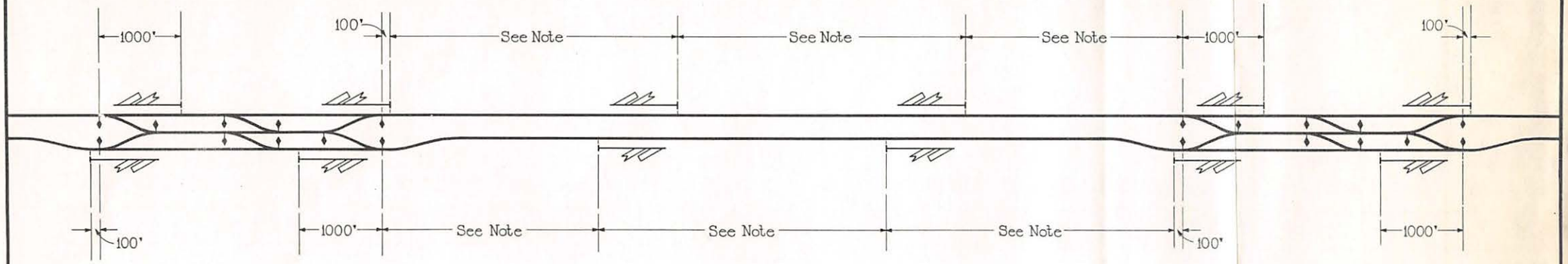
# COMMON STANDARD

## NUMBER PLATES FOR SIGNALS

NO SCALE

ADOPTED: SEPTEMBER 1909
REVISED: JAN. 7 1925.

C.S.
264




Note:
Distance to be varied to suit local conditions of grade, traffic, curvature etc.

UNION PACIFIC SYSTEM

# COMMON STANDARD

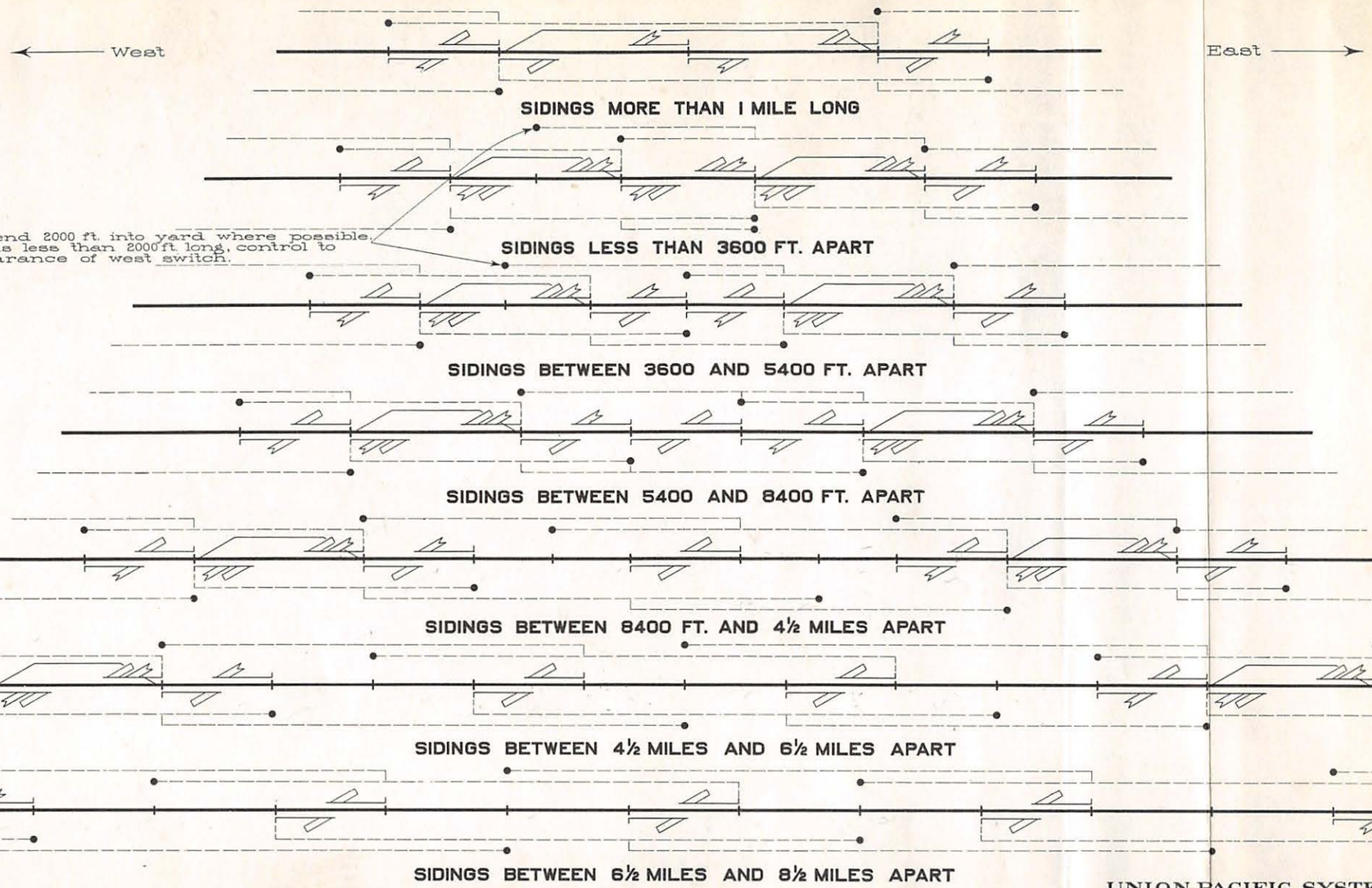
## AUTOMATIC BLOCK SIGNALS

## FOR DOUBLE TRACK

NO SCALE

ADOPTED : APRIL-1911.
REVISED: SEPT. 16, 1922.

C.S.
276


West
East
SIDINGS MORE THAN 1 MILE LONG
Control to extend 2000 ft. into yard where possible. Where siding is less than 2000 ft. long, control to extend to clearance of west switch.
SIDINGS LESS THAN 3600 FT. APART
SIDINGS BETWEEN 3600 AND 5400 FT. APART
SIDINGS BETWEEN 5400 AND 8400 FT. APART
SIDINGS BETWEEN 8400 FT. AND 4½ MILES APART
SIDINGS BETWEEN 4½ MILES AND 6½ MILES APART
SIDINGS BETWEEN 6½ MILES AND 8½ MILES APART

Note

Distance between sidings is measured from head blocks of outlying switches.
Distance between opposing intermediate signals and between home and distant signals to be approximately 2640 feet.

UNION PACIFIC SYSTEM

# COMMON STANDARD

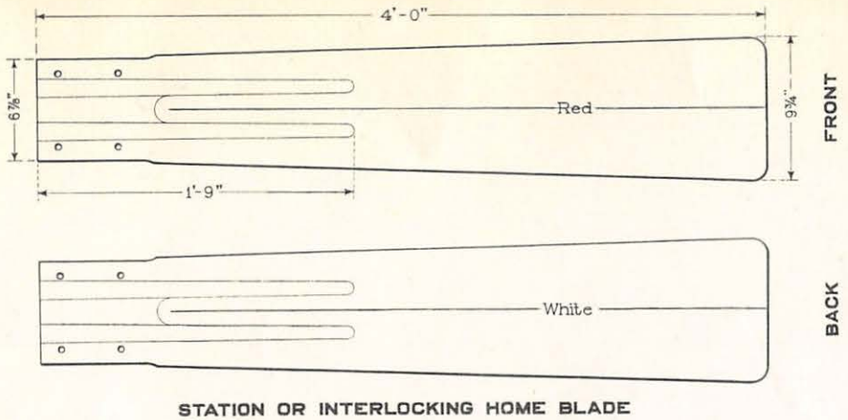
## AUTOMATIC BLOCK SIGNAL LAYOUTS

ON SINGLE TRACK

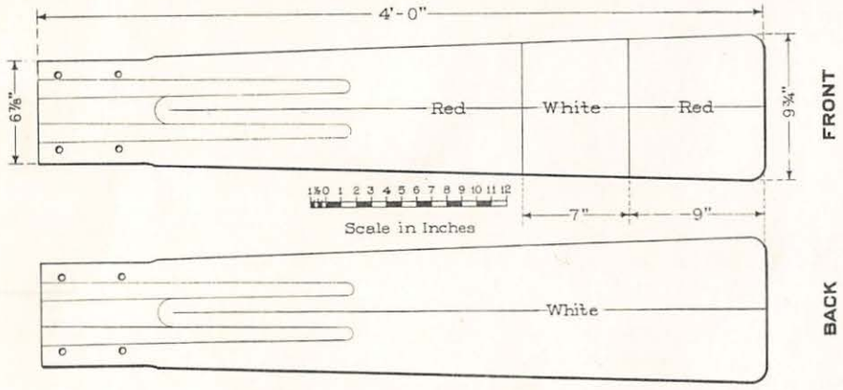
NO SCALE H.P.

ADOPTED: OCT. 1, 1912.
REVISED: DEC. 14, 1923.

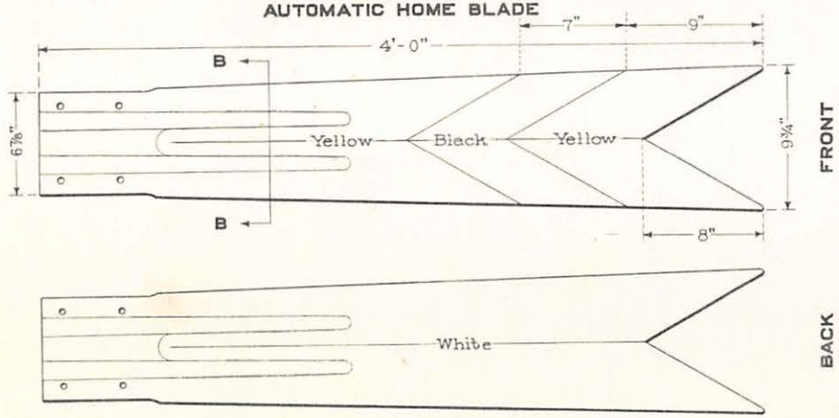
C.S.
294



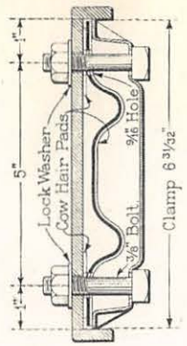

STATION OR INTERLOCKING HOME BLADE



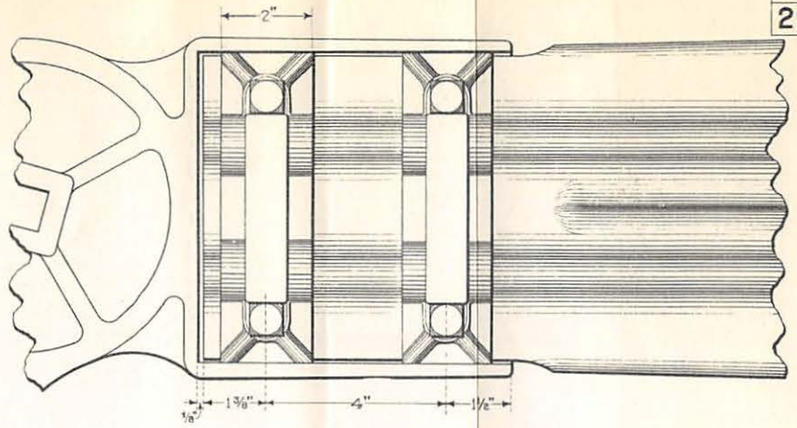

AUTOMATIC HOME BLADE




AUTOMATIC OR INTERLOCKING DISTANT BLADE

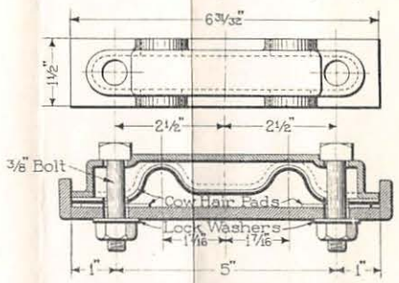



PRESSED STEEL CLAMP

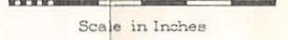



Assembly showing Steel Clamps in place

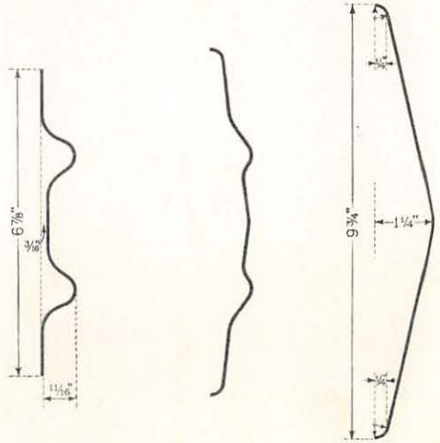
Material Required.
- 1 - Enameled Steel Signal Blade
- 2 - Steel or Malleable Iron Clamps
- 4 - Cow Hair Pads
- 4 - Bolts and Nuts
- 2 - Lock Washers




MALLEABLE IRON CLAMP




Scale in Inches




END SECTION SECTION B-B END SECTION

Blade to be made of No. 15 (.0703 ins.) U. S. Std. Gauge, open hearth enameling steel with 3 coats of vitreous enamel fused into the steel at a heat of not less than 2500° Fahr.

Surfaces resting against grips to be perfectly flat where shown, with an allowable variation of not more than 1/32 of an inch either way.

Colors to conform to Union Pacific Standard as follows: Red No. 205 (Semaphore Vermillion) Yellow No. 206 (Semaphore Yellow) as per color card accompanying Specification C. S. 22 for paints.

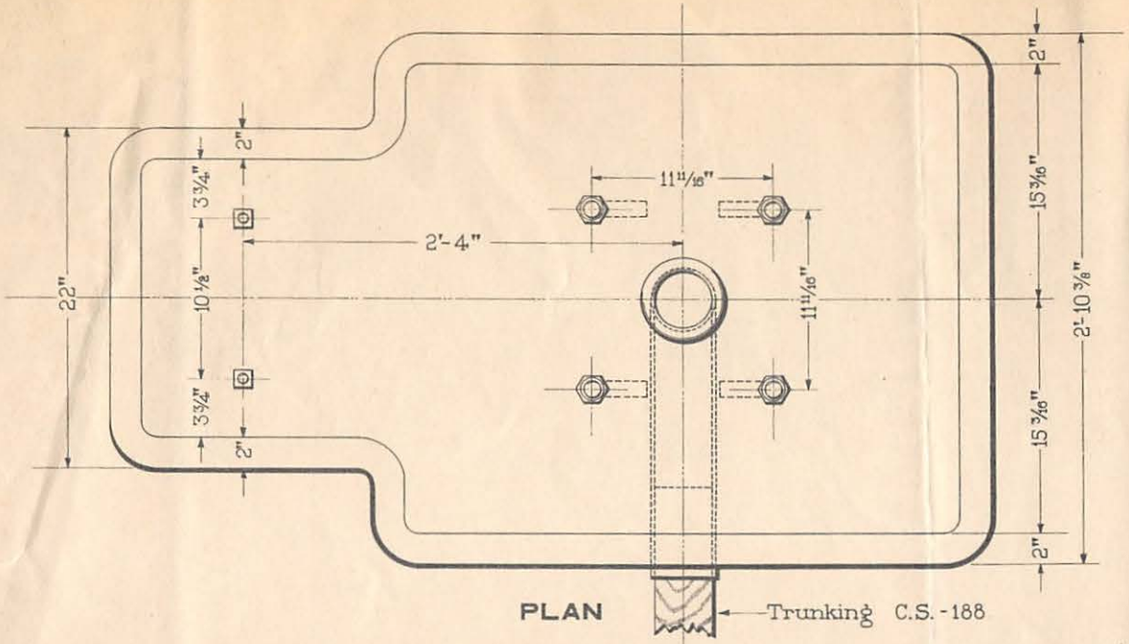
UNION PACIFIC SYSTEM

# COMMON STANDARD

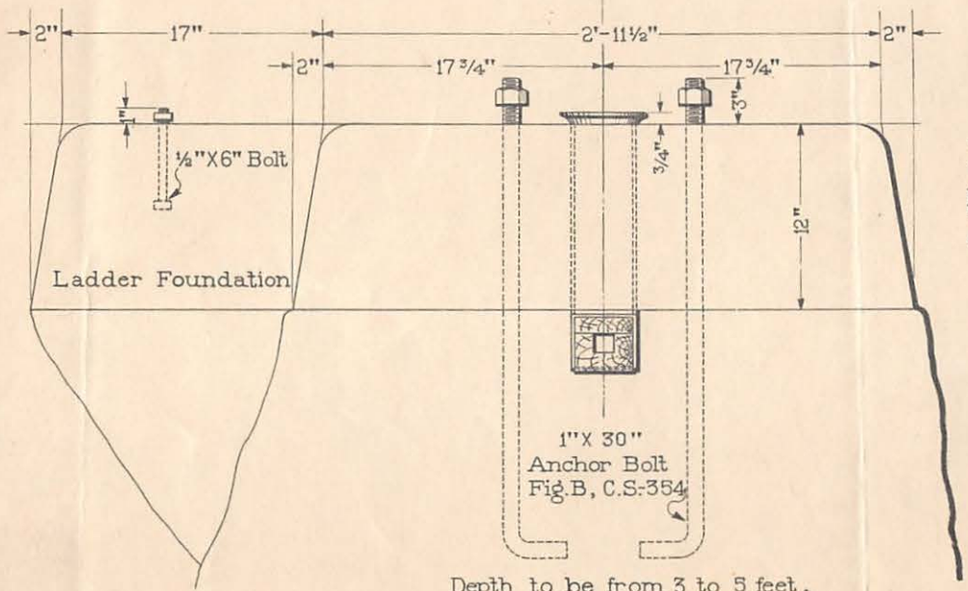
## ENAMELED STEEL SIGNAL BLADE

SCALE AS SHOWN J.C.McG. ADOPTED JUNE - 1914
REVISED AUG.-27-1920

C.S. 352




PLAN — Trunking C.S.-188

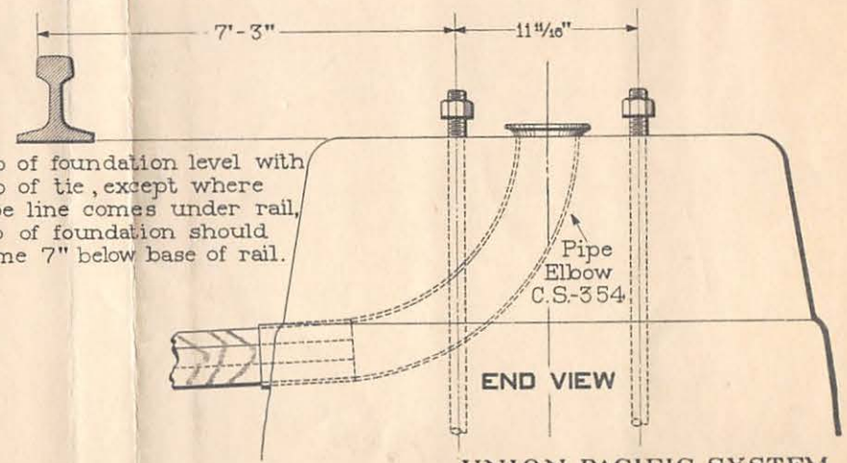



Depth to be from 3 to 5 feet, according to character of ground.

SIDE VIEW

## CONCRETE SPECIFICATIONS

1 Part Cement.
2 Parts Sand.
4 Parts Crushed Rock or Gravel.
Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and whitewashed with neat cement.




Top of foundation level with top of tie, except where pipe line comes under rail, top of foundation should come 7" below base of rail.

END VIEW

UNION PACIFIC SYSTEM

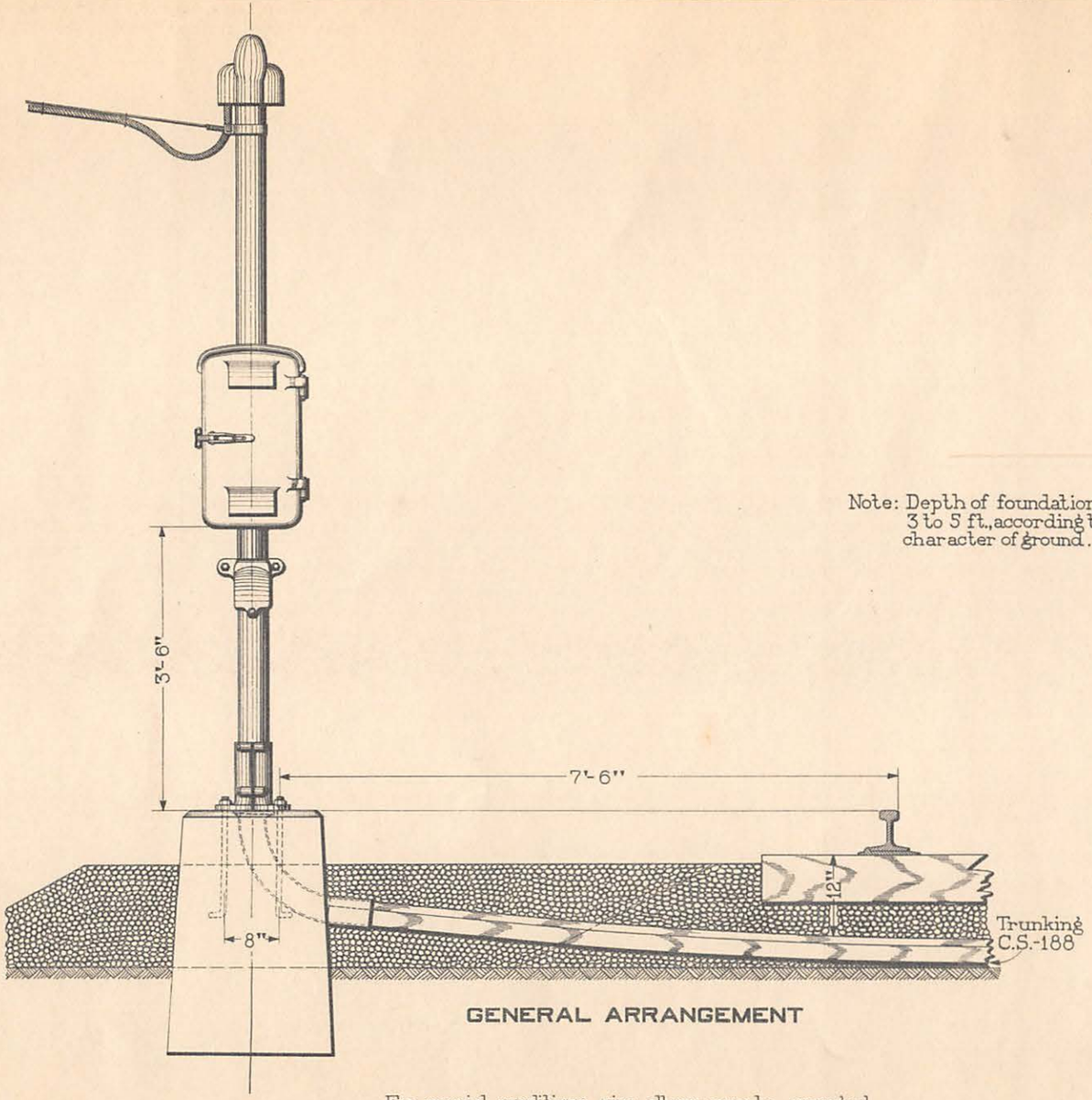
# COMMON STANDARD

## CONCRETE FOUNDATION

FOR 1-ARM OR 2-ARM MECHANICAL SIGNAL

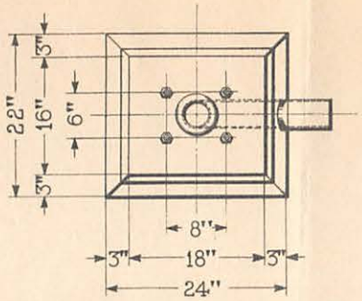
NO SCALE A.H.M. ADOPTED : NOV. 11, 1920.

C.S.
353



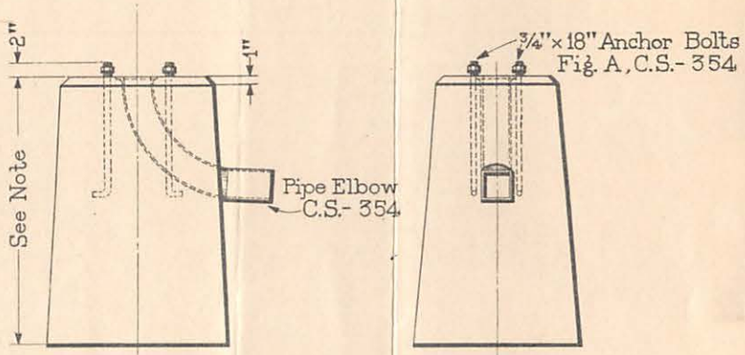

GENERAL ARRANGEMENT

For special conditions, pipe elbow may be arranged to lead out parallel with track.
Paint post, box, and all ironwork black.
Top of foundation level with top of rail.
Top of elbow set flush with top of foundation.




PLAN

Note: Depth of foundation 3 to 5 ft., according to character of ground.




FRONT VIEW SIDE VIEW

CABLE POST FOUNDATION

## CONCRETE SPECIFICATIONS

1 Part Cement.
2 Parts Sand.
4 Parts Crushed Rock or Gravel.
Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and whitewashed with neat cement.

UNION PACIFIC SYSTEM

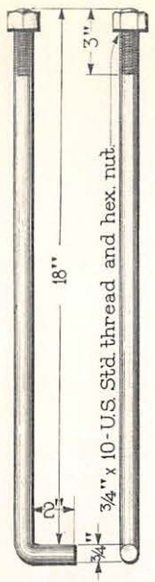
# COMMON STANDARD

## IRON RELAY BOX, CABLE POST AND FOUNDATION

NO SCALE ADOPTED, NOV, 11, 1920.

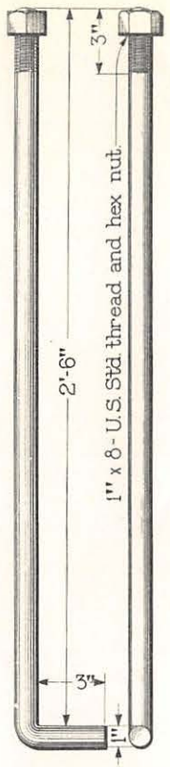
C.S. 354

FIG. A.



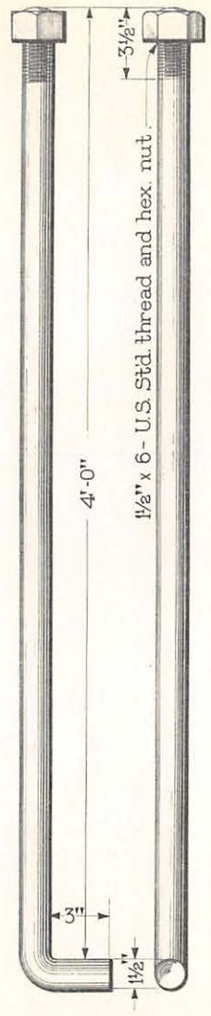

ANCHOR BOLT FOR CABLE POST FOUNDATION

FIG. B.



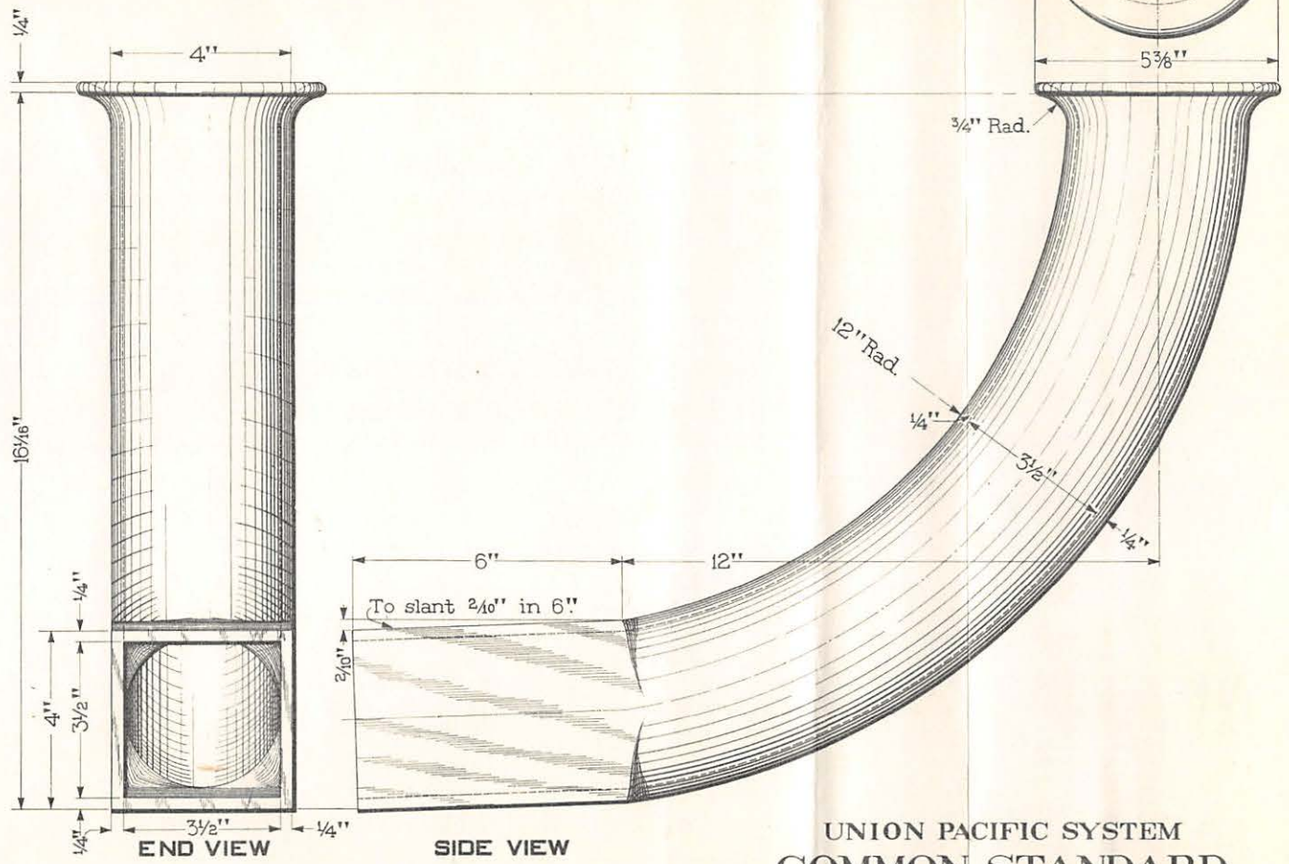

ANCHOR BOLT FOR HIGH SIGNAL FOUNDATION

FIG. C.




ANCHOR BOLT FOR BRACKET POST FOUNDATION

Note:
Elbow to be made of cast iron.
All edges to be well rounded.




ELBOW

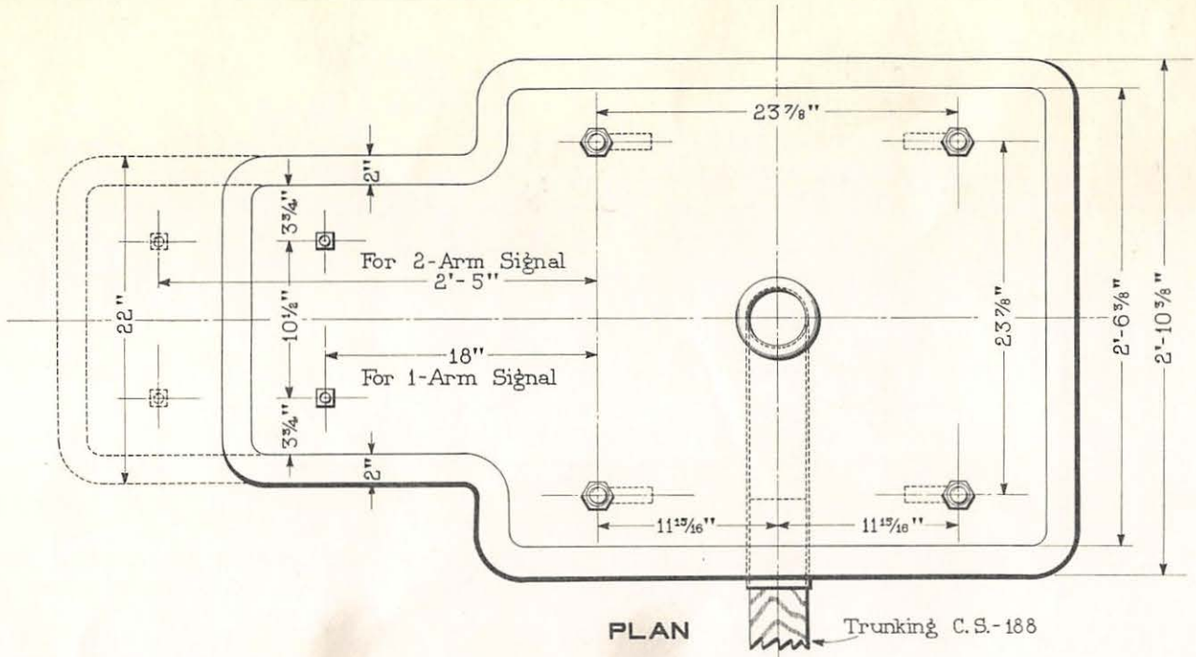
UNION PACIFIC SYSTEM

# COMMON STANDARD

## ANCHOR BOLTS AND ELBOW FOR SIGNAL FOUNDATIONS

NO SCALE. D.C.B. ADOPTED: DEC. 4, 1920.

C.S.
361

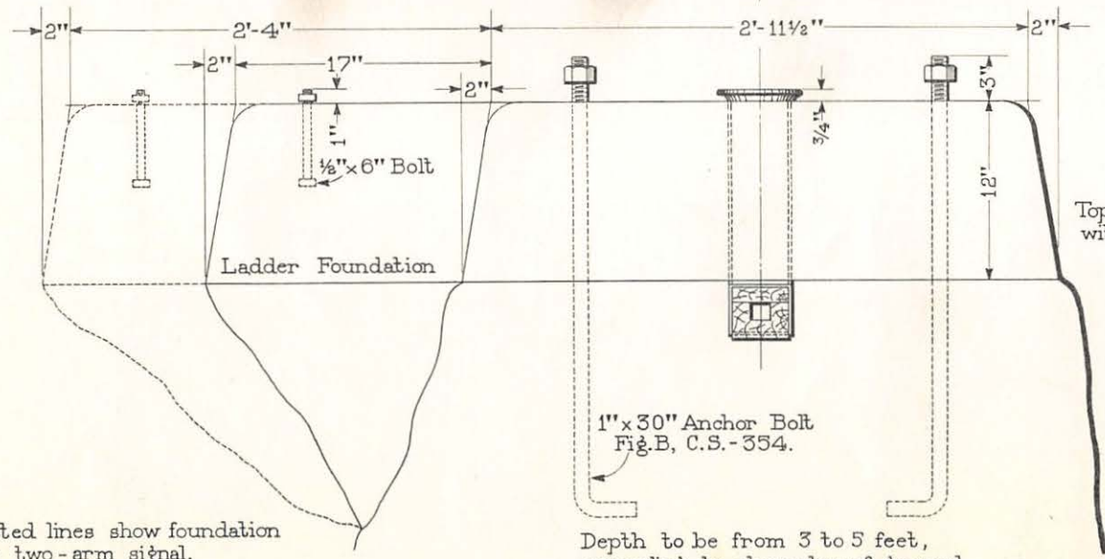



PLAN

## CONCRETE SPECIFICATIONS

1 Part Cement.
2 Parts Sand.
4 Parts Crushed Rock or Gravel.
Mix wet and tamp with shovels.
Upper part of foundation to be made in mold and whitewashed with neat cement.

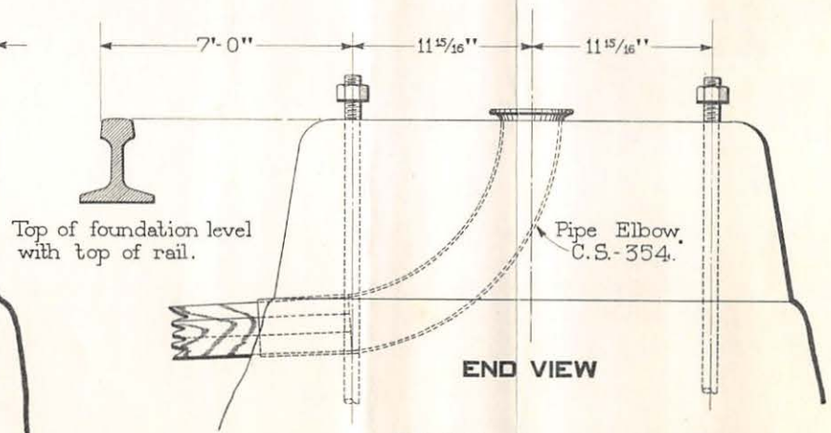
Note: Location of pipe elbow in concrete foundation optional. It should be so placed as to secure best distribution of wires inside of signal case.




Dotted lines show foundation for two-arm signal.

Depth to be from 3 to 5 feet, according to character of ground.

SIDE VIEW




END VIEW

UNION PACIFIC SYSTEM

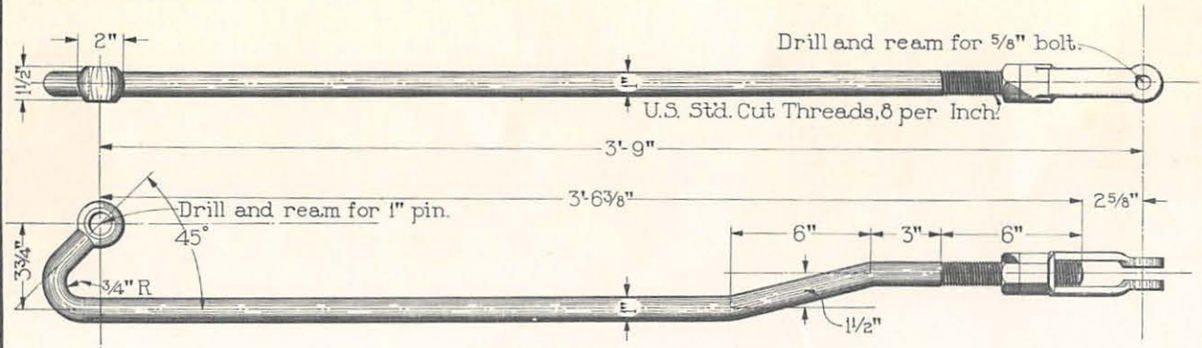
# COMMON STANDARD

## CONCRETE FOUNDATION

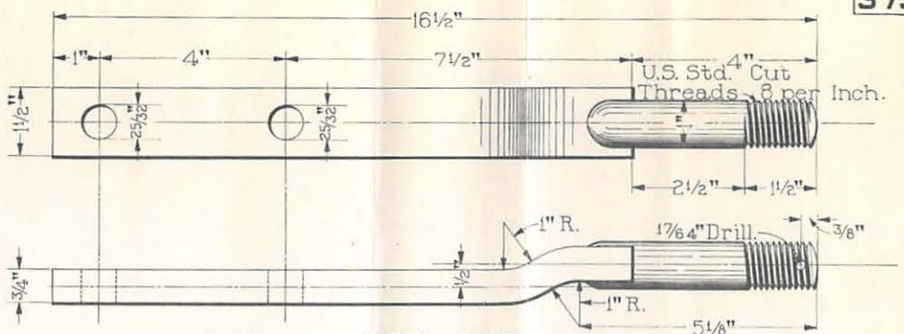
## FOR DOUBLE CASE ELECTRIC SIGNAL

NO SCALE A.H.M. ADOPTED : DEC.13,1920.

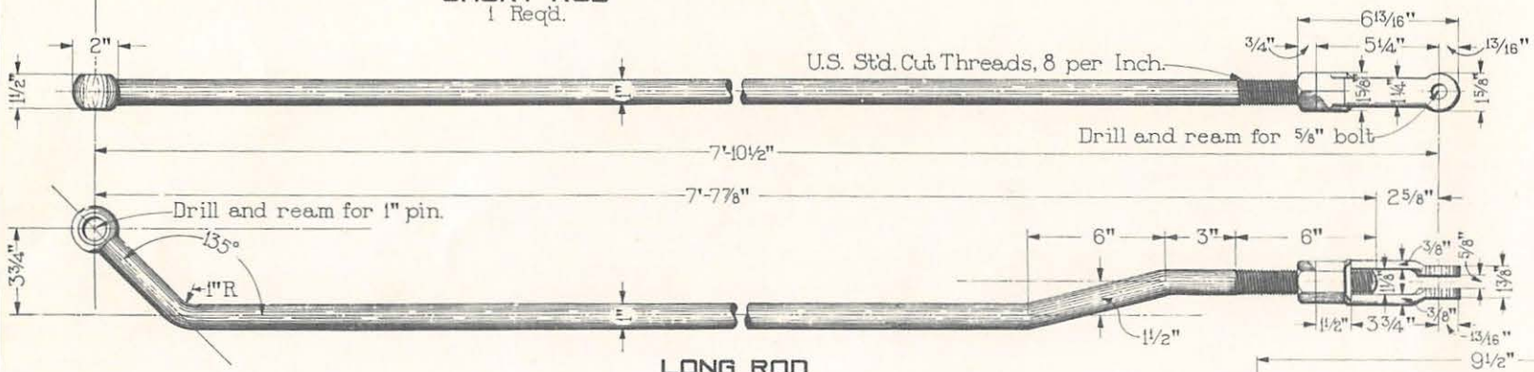
C.S.
373



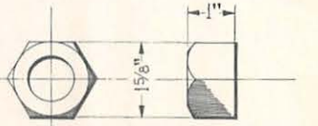

SHORT ROD
1 Req'd.




POINT LUG
1 Req'd.

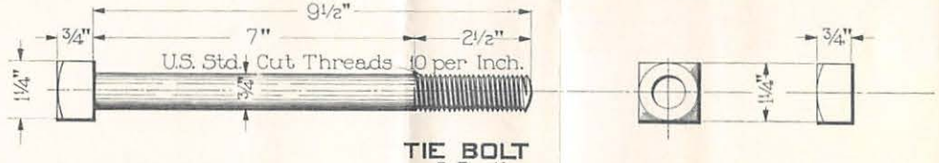



LONG ROD
1 Req'd.

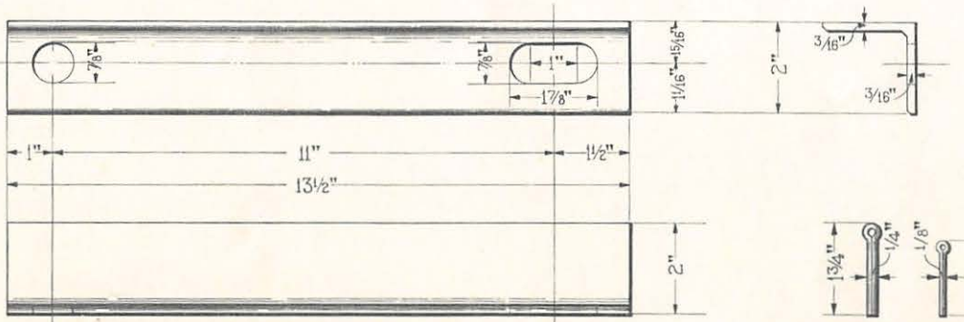



POINT LUG NUT
1 Req'd.

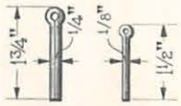
JAW BOLT
1 Req'd.



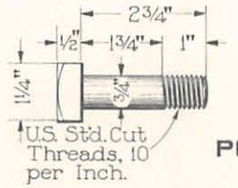

TIE BOLT
2 Req'd.

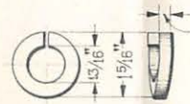



ANGLE IRON
1 Req'd.

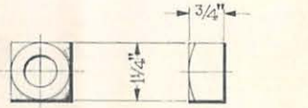



COTTERS
1 Each req'd.




POINT LUG BOLT AND NUT LOCK
2 Each req'd.




Note:
Short rod to be used when switch circuit controller is located on closed point side of switch.
Long rod to be used when switch circuit controller is located on open point side of switch.

UNION PACIFIC SYSTEM

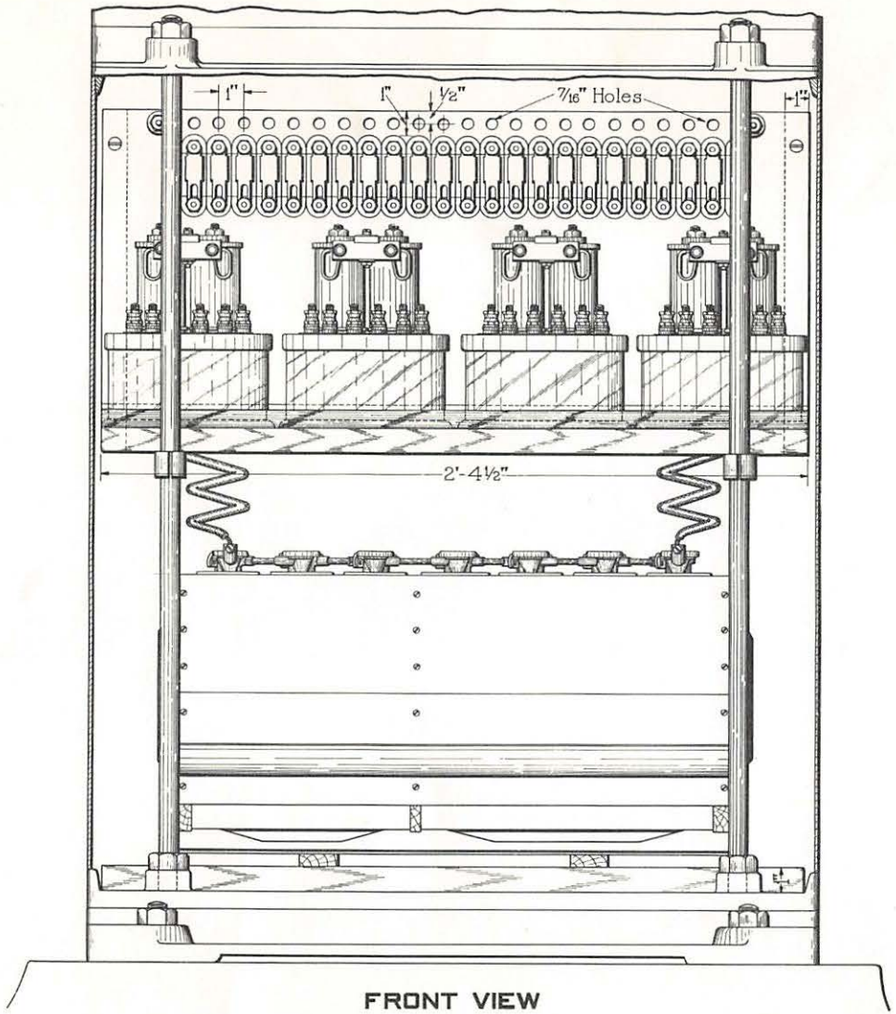
# COMMON STANDARD

## SWITCH CIRCUIT CONTROLLER RODS AND CONNECTIONS

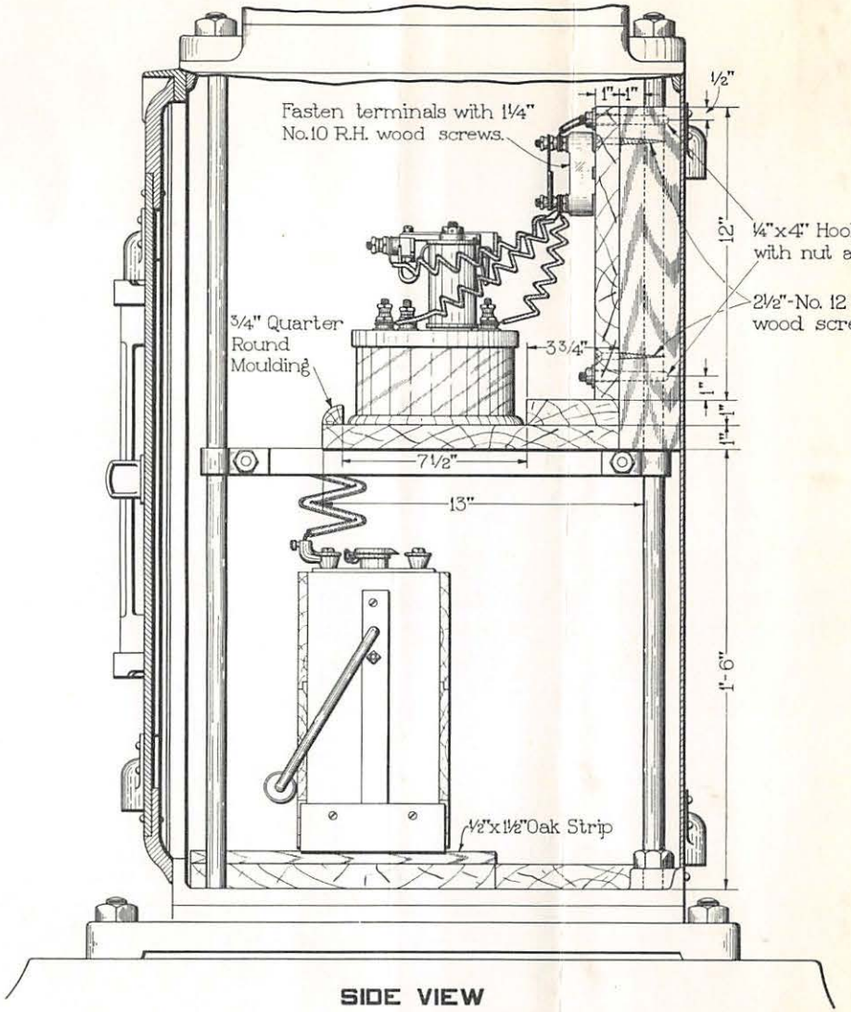
NO SCALE

ADOPTED, AUG. 23, 1921.

C.S. 377




FRONT VIEW




SIDE VIEW

Note:
Paint all woodwork with acid-proof paint.
Paint ironwork inside of signal case with aluminum paint, C.S. 26.
All openings in base and top of concrete foundation to be sealed with asphaltum.
Relays may be set with contact fingers parallel to shelf if desired.

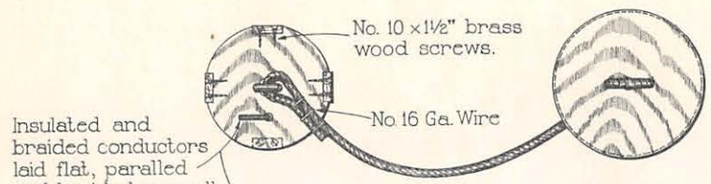
UNION PACIFIC SYSTEM

# COMMON STANDARD

## METHOD OF INSTALLING TERMINAL BOARDS RELAY & BATTERY SHELVES IN SIGNAL CASES

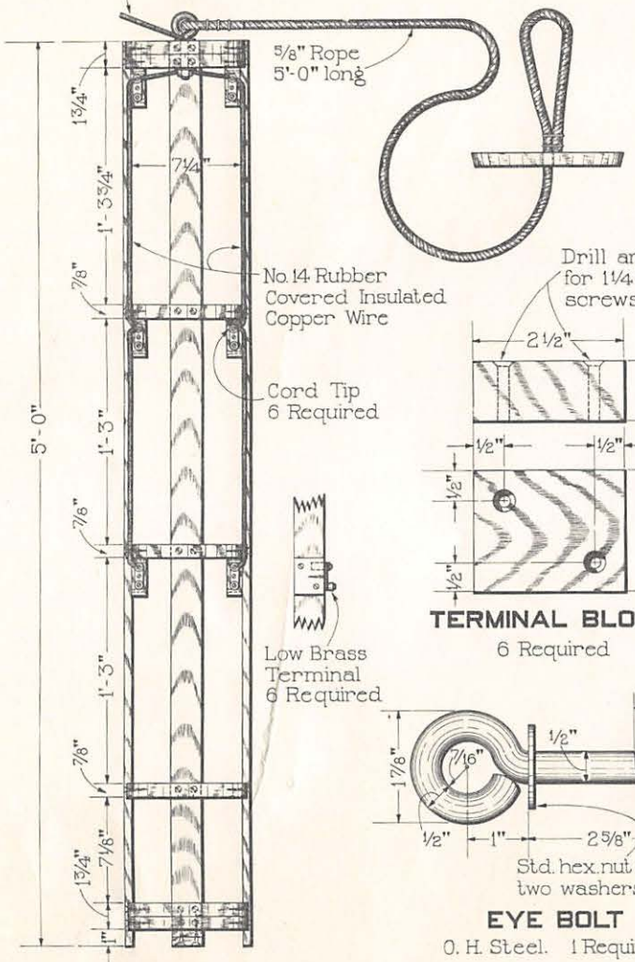
NO SCALE J.A.C. ADOPTED: OCT. 2, 1924. REVISED: OCT 22, 1925.

C.S. 384

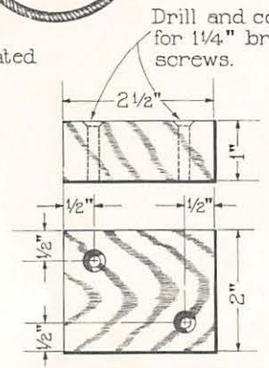



Insulated and braided conductors laid flat, paralled and braided over all. Not to be furnished with elevator.

No. 12 B. & S. Ga. flexible stranded (19 Strands) "Duplex" copper wire; each conductor insulated with 3/64" wall.

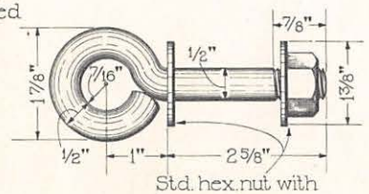



**ELEVATOR ASSEMBLY**




**TERMINAL BLOCK**

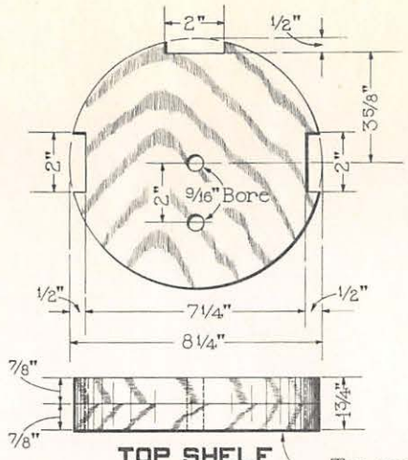
6 Required




Std. hex. nut with two washers.

**EYE BOLT**

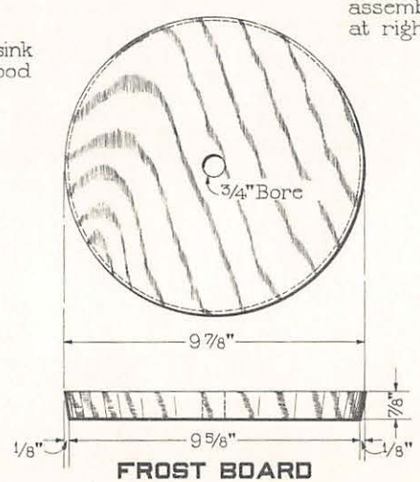
O. H. Steel. 1 Required




**TOP SHELF**

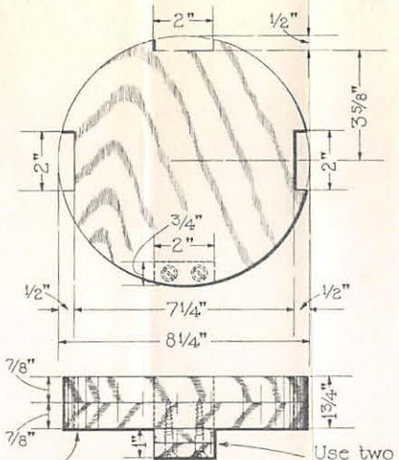
1 Required

Top and bottom shelves to be assembled with grains at right angles.




**FROST BOARD**

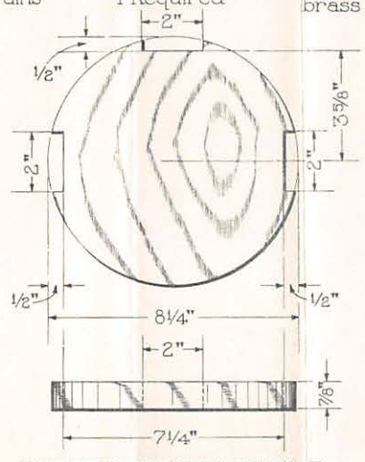
1 Required




**BOTTOM SHELF**

1 Required

Use two cleats on bottom with two No. 10 x 2" brass wood screws.




**INTERMEDIATE SHELF**

3 Required

**UPRIGHT**

3 Required

Note:
Shelves and frost board to be made of white pine.
Terminal blocks to be made of hard wood.
Uprights to be made of clear hard maple.
Brass wood screws to be used through out.
Paint with two coats of black asphaltum.

UNION PACIFIC SYSTEM

# COMMON STANDARD

## BATTERY CHUTE ELEVATOR

NO SCALE

ADOPTED AUG. 28, 1922.